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FLOOD INSURANCE STUDY



ROBESON COUNTY, NORTH CAROLINA AND INCORPORATED AREAS



COMMUNITY NAME	COMMUNITY NUMBER
FAIRMONT, TOWN OF	370205
LUMBER BRIDGE, TOWN OF	370459
LUMBERTON, CITY OF	370203
ORRUM, TOWN OF	370349
PARKTON, TOWN OF	370454
RED SPRINGS, TOWN OF	370204
UNINCORPORATED AREAS	370202

FEBRUARY 17, 1989



Federal Emergency Management Agency

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

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Flood Insurance Rate Map

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FLOOD INSURANCE STUDY
ROBESON COUNTY, NORTH CAROLINA
AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the geographic area of Robeson County, North Carolina, including the City of Lumberton, the Towns of Orrum, Fairmont, Red Springs, Parkton, and Lumber Bridge, and the Unincorporated Areas of Robeson County (hereinafter referred to collectively as Robeson County), and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program, are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

This Flood Insurance Study revises and supersedes a previous Flood Insurance Study for the City of Lumberton, North Carolina (Reference 1); a previous Flood Insurance Rate Map for the Town of Red Springs, North Carolina (Reference 2); and a previous Flood Hazard Boundary Map for Robeson County, North Carolina (Reference 3). This information will be used by the communities to update existing floodplain regulations as part of the regular phase of the National Flood Insurance Program. The information will also be used by local and regional planners to further promote sound land use and floodplain development.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by the U.S. Army Corps of Engineers (COE), Wilmington District, (the Study Contractor) for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-84-E-1506, Project Order No. 1. This study was completed in April 1986.

1.3 Coordination

On February 2, 1984, streams requiring detailed study were identified at a meeting attended by representatives of the COE, FEMA, and Robeson

County. Various State, Federal, and local agencies were contacted to obtain existing data and previously published flooding information. In May 1985, a public notice was published in the Robesonian to announce the initiation of this study and request flooding information.

On April 7, 1988, the results of this Flood Insurance Study were reviewed and accepted at a final coordination meeting attended by representatives of the Study Contractor, FEMA, and the community.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the geographic area of Robeson County, North Carolina. The area of study is shown on the Vicinity Map (Figure 1).

Flooding caused by overflow of the Lumber River, Jacob Swamp, Little Jacob Swamp, Saddletree Swamp, Saddletree Swamp Tributary, Back Swamp, Five Mile Branch, Meadow Branch, Pole Cat Branch, Ivey Branch, and Bear Swamp was studied in detail.

Areas having low development potential or minimal flood hazards were previously studied using approximate analyses. The results were shown on the Flood Insurance Rate Maps for the City of Lumberton and the Town of Red Springs, North Carolina (References 1 and 2); and the Flood Hazard Boundary Maps for Robeson County and the Towns of Fairmont and Orrum, North Carolina (References 3-5); and are incorporated into this Flood Insurance Study.

The areas studied were selected with priority given to all known flood hazard areas and areas of projected development or proposed construction through April 1991. The scope and methods of study were proposed to and agreed upon by FEMA and Robeson County.

2.2 Community Description

Robeson County is in southeastern North Carolina and has a total land area of 944 square miles. The county is served by Interstate 95, U.S. Routes 74, 301, and 501, State Roads 41, 71, and 130, and the CSX railroad. The 1980 population of Robeson County was reported to be 101,610 (Reference 6), of which 18,241 live in the City of Lumberton, the largest incorporated area in Robeson County.

2.3 Principal Flood Problems

Portions of Robeson County are subject to periodic flooding. The most severe flooding has generally occurred as a result of heavy rainfall resulting from tropical hurricanes in late summer and early fall. The flood of record occurred in September 1928, although the flood of October 1929 was almost as severe as the event experienced the previous year.

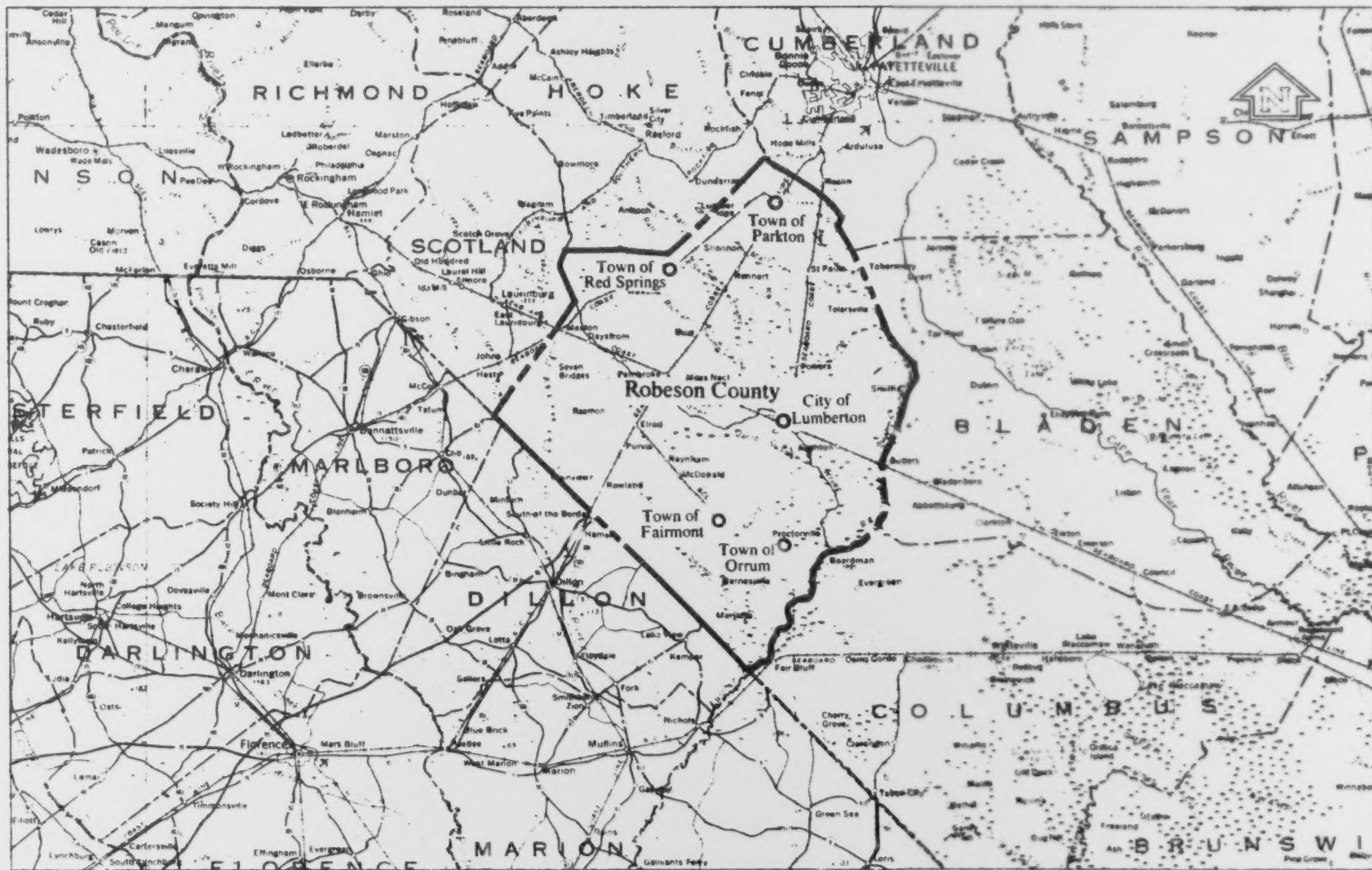


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROBESON COUNTY, NC
AND INCORPORATED AREAS**

APPROXIMATE SCALE

12 0 12 24 36 MILES

VICINITY MAP

2.4 Flood Protection Measures

A levee construction and channel improvement project has been completed by the U.S. Soil Conservation Service (SCS) in the Jacob Swamp watershed. The project includes approximately 2.8 miles of levees along the south side of the Lumber River from Interstate 95 downstream to SR 2289; rerouting of Gum Branch, Cotton Mill Branch, and Jacob Swamp; and channel improvements to those streams.

The SCS also maintains and monitors several culverts that cross under Interstate 95. These culverts are equipped to aid in protecting Lumberton during a flood. A CSX railroad underpass beneath Interstate 95 also causes concern to Lumberton and the city has developed a plan to prevent floodwater from entering the city through the underpass. Based on the assurance that this plan will be implemented when necessary, it is assumed that during a 100-year flood no water would flow through the underpass.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that is expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each riverine flooding source studied in detail affecting the community.

Records from long-term gaging stations at three locations on the Little Pee Dee River and the Lumber River were the principal sources of data used to determine discharge-frequency relationships for the Lumber River below Lumberton. For the reach of the Lumber River from Lumberton to the Hoke County line and for the other streams studied in detail, discharges were determined using a regional study performed by the Wilmington District of the COE (Reference 7).

Peak discharge-drainage area relationships for the 10-, 50-, 100-, and 500-year floods of each flooding source studied in detail in the community are shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
LUMBER RIVER					
at State boundary	1,616.0	13,000	19,600	22,600	30,700
at Chippewa Street	714.0	7,000	12,000	15,000	25,000
at North Carolina Highway 710	420.0	4,750	8,550	10,600	16,700
at Hoke County boundary	347.0	4,230	7,620	9,500	14,900
JACOB SWAMP					
at mouth	17.9	700	1,290	1,605	2,550
just upstream of confluence of Little Jacob Swamp	5.2	275	515	640	1,025
just upstream of diversion canal	2.6	145	270	335	540
LITTLE JACOB SWAMP					
at mouth	6.5	380	700	870	1,390
about 1,900 feet upstream of SR 2513	1.3	145	365	335	535
SADDLETREE SWAMP					
at mouth	10.9	750	1,450	1,900	3,200
about 1,300 feet upstream of SR 1758	3.2	250	460	575	920
BEAR SWAMP					
at mouth	28.3	925	1,695	2,110	3,345
just downstream of CSX railroad	13.8	600	1,100	1,375	2,185
just downstream of State Road 710	4.4	300	550	690	1,100
BACK SWAMP					
at mouth	33.9	1,030	1,890	2,350	3,725
at SR 1157	15.1	630	1,160	1,450	2,305
about 2.1 miles upstream of SR 1188	1.1	130	245	305	495

TABLE 1 - SUMMARY OF DISCHARGES (Continued)

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ. MILES)	PEAK DISCHARGE (CFS)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
FIVE MILE BRANCH					
at Roberts Avenue	14	1,435	2,840	3,700	6,400
just upstream of					
confluence of					
Meadow Branch	8.6	660	1,340	1,760	3,150
MEADOW BRANCH					
at mouth	6.0	2,700	3,600	4,100	6,400
at U.S. 301 Business	4.6	2,270	3,110	3,470	5,320
POLE CAT BRANCH					
at mouth	0.6	490	650	720	1,050
at U.S. 301 Business	0.5	440	580	640	940
IVEY BRANCH					
at CSX railroad	3.5	1,620	2,180	2,430	3,630

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Bridge opening geometry and adjacent cross sections were determined using field measurements taken in March 1984. Additional cross sections were developed using photogrammetric methods (Reference 8).

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles and on the Flood Insurance Rate Map.

Roughness factors (Manning's "n") used in the hydraulic computations were determined using historical flood data and existing information on floodplain conditions. For the streams studied, Manning's "n" values ranged from 0.060 to 0.120 for the channel and 0.080 to 0.150 for the overbanks.

Flood profiles were drawn showing the computed water-surface elevations for floods of the selected recurrence intervals. In cases where the 50- and 100-year flood elevations are close together, due to limitations of the profile scale, only the 100-year profile has been shown.

Areas of the community protected by levees are subject to potential risk due to possible failure or overtopping of the levee. These areas were delineated by applying the 100-year elevation determined from the "levee in place" analysis.

The hydraulic analyses for this study are based on the effects of unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the map and described in the exhibit labeled Elevation Reference Marks.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages State and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist communities in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:24000 with a contour interval of 5 feet (Reference 9).

The 100- and 500-year floodplain boundaries are shown on the Flood Insurance Rate Map. On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A, AE, AH, AO, A99, V, and VE) and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary was delineated using the Flood Insurance Rate Maps for the City of Lumerton and the Town of Red Springs (References 1 and 2), and the Flood Hazard Boundary Maps for Robeson County and the Towns of Fairmont and Orrum (References 3-5).

Some areas of the community that are protected from the 100-year flood by a levee have been delineated as having potential risk due to possible failure or overtopping of the levee during larger floods.

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces the flood-carrying capacity, increases the flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways for this study were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections and are shown in Table 2, Floodway Data. The computed floodways are shown on the Flood Insurance Rate Map. In cases where the floodway and the 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown. Portions of the floodway for the Lumber River lie outside the county boundary.

Floodways have not been shown or computed for this community. Along streams where floodways have not been computed, the community must ensure that the cumulative effect of development in the floodplain will not cause more than a 1.0-foot increase in the base flood elevations at any point within the community.

The area between the floodway and the 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
LUMBER RIVER								
A	98,770	7247 ²	33,338	0.7	61.2	61.2	62.1	0.9
B	107,165	7283 ²	33,805	0.7	62.8	62.8	63.7	0.9
C	117,470	8760 ²	31,824	0.7	65.3	65.3	65.8	0.5
D	118,210	9170 ²	46,069	0.4	66.6	66.6	67.4	0.8
E	155,054	3740 ²	17,965	1.1	69.8	69.8	70.2	0.4
F	173,534	5720 ²	22,594	0.9	74.5	74.5	75.0	0.5
G	209,968	8200 ²	30,059	0.7	79.7	79.7	80.3	0.6
H	217,728	6430 ²	22,598	0.9	81.8	81.8	82.3	0.5
I	220,359	4860 ²	17,373	1.2	83.5	83.5	83.9	0.4
J	220,515	4820 ²	20,724	0.9	83.5	83.5	83.9	0.4
K	228,263	5200	32,655	0.6	84.6	84.6	85.0	0.4
L	241,178	6620	20,523	0.7	86.0	86.0	86.6	0.6
M	252,170	8680	27,178	0.6	89.0	89.0	89.6	0.6
N	261,807	12,800	31,085	0.5	92.3	92.3	92.7	0.4
O	273,557	8500	23,000	0.7	95.0	95.0	95.6	0.6
P	282,452	6000	25,855	0.6	99.0	99.0	99.9	0.9
Q	288,605	2000	11,539	1.3	100.4	100.4	101.3	0.9
R	299,482	2712	15,777	1.0	104.2	104.2	105.0	0.8
S	314,794	3368	16,021	0.9	107.6	107.6	108.5	0.9
T	325,300	3150	11,734	1.3	112.7	112.7	113.2	0.5
U	326,087	3350	18,105	0.8	113.4	113.4	113.8	0.4
V	329,578	3470	20,709	0.7	114.1	114.1	114.6	0.5
W	335,600	2330	14,041	1.1	115.3	115.3	116.1	0.8
X	336,240	2340	14,277	1.0	115.4	115.4	116.2	0.8
Y	338,765	1820	16,787	0.9	115.9	115.9	116.8	0.9
Z	339,510	1680	14,293	1.0	116.0	116.0	116.9	0.9

¹FEET ABOVE MOUTH

²THIS WIDTH EXTENDS BEYOND COUNTY BOUNDARY

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROBESON COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

LUMBER RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
LUMBER RIVER								
AA	341,765	1813	12,539	1.2	116.8	116.8	117.8	1.0
AB	343,730	392	3888	3.8	118.4	118.4	119.2	0.8
AC	344,775	311	3774	3.9	120.8	120.8	121.5	0.7
AD	346,075	739	10,061	1.5	121.5	121.5	122.1	0.6
AE	347,275	751	7942	1.9	121.7	121.7	122.3	0.6
AF	354,065	1550	26,476	0.5	123.5	123.5	124.5	1.0
AG	363,500	3668	41,426	0.3	124.3	124.3	125.3	1.0
AH	364,660	3405	38,661	0.3	124.4	124.4	125.4	1.0
AI	369,800	1452	16,050	0.7	124.7	124.7	125.7	1.0
AJ	371,140	1273	13,196	0.9	125.7	125.7	126.7	1.0
AK	398,600	2500	15,301	0.7	129.3	129.3	130.0	0.7
AL	403,000	2379	16,855	0.7	129.8	129.8	130.5	0.7
AM	412,000	1370	9203	1.2	131.5	131.5	132.3	0.8
AN	419,950	1720	7941	1.4	136.4	136.4	136.8	0.4
AO	420,125	1497	2982	3.8	136.7	136.7	137.1	0.4
AP	424,500	1606	12,269	0.9	138.6	138.6	139.0	0.4
AQ	432,000	984	6697	1.7	141.3	141.3	142.2	0.9
AR	443,000	1365	11,492	1.0	145.5	145.5	146.4	0.9
AS	450,900	939	8533	1.3	147.7	147.7	148.5	0.8
AT	451,240	920	9260	1.2	148.4	148.4	149.4	1.0
AU	458,500	1176	7703	1.5	151.5	151.5	152.2	0.7
AV	465,000	1384	14,921	0.8	152.8	152.8	153.5	0.7
AW	467,530	1349	13,515	0.8	153.1	153.1	153.8	0.7
AX	474,350	806	8530	1.3	155.0	155.0	155.5	0.5
AY	481,000	1456	14,036	0.8	155.8	155.8	156.4	0.6
AZ	489,000	890	7623	1.5	156.8	156.8	157.6	0.8

¹FEET ABOVE MOUTH

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROBESON COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

LUMBER RIVER

10

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
LUMBER RIVER								
BA	495,380	281	3459	3.1	162.2	162.2	162.6	0.4
BB	502,000	1433	13,873	0.8	164.0	164.0	164.5	0.5
BC	511,415	594	5379	2.0	166.1	166.1	166.8	0.7
BD	517,000	770	8426	1.3	168.7	168.7	169.6	0.9
BE	524,950	1981	16,483	0.6	170.1	170.1	171.1	1.0
BF	534,950	1886	14,086	0.8	171.8	171.8	172.7	0.9
BG	547,650	410	3417	2.9	176.4	176.4	176.9	0.5
BH	547,970	500	4394	2.3	177.6	177.6	177.9	0.3
BI	565,270	1200	11,927	0.8	183.2	183.2	183.9	0.7
BJ	565,600	1359	13,775	0.7	184.0	184.0	184.5	0.5
BK	569,620	1246	8772	1.1	184.8	184.8	185.4	0.6
BL	573,540	600	6372	1.6	186.4	186.4	187.1	0.7
BM	573,850	690	7168	1.4	187.1	187.1	187.7	0.6
BN	578,000	1150	10,991	0.9	188.1	188.1	188.8	0.7
BO	583,310	1380 ²	12,548	0.8	188.9	188.9	189.6	0.7
BP	590,100	789 ²	5995	1.6	191.1	191.1	191.8	0.7
BQ	598,000	789 ²	7331	1.3	195.0	195.0	195.9	0.9
BR	603,380	991 ²	9925	1.0	193.8	196.8	197.7	0.9
BS	607,100	1155 ²	12,393	0.8	197.4	197.4	198.4	1.0
BT	612,440	450 ²	5941	1.6	198.5	198.5	199.4	0.9
BU	617,670	900 ²	7877	1.2	200.1	200.1	201.0	0.9
BV	623,280	1005 ²	6282	1.5	203.1	203.1	204.0	0.9

¹FEET ABOVE MOUTH

²THIS WIDTH EXTENDS BEYOND COUNTY BOUNDARY

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROBESON COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

LUMBER RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
MEADOW BRANCH								
A	300	650 ⁴	3307	0.9	123.8	122.0 ²	123.0	1.0
B	1070	350	2072	2.0	125.2	125.2	126.2	1.0
C	3000	265	1321	2.8	126.7	126.7	127.7	1.0
D	3780	285	1502	2.5	127.6	127.6	128.6	1.0
E	3860	295	1273	2.9	127.7	127.7	128.7	1.0
F	4410	255	1354	2.6	128.3	128.3	129.3	1.0
G	4520	235	1182	2.9	128.7	128.7	129.5	0.8
H	4950	150	694	5.0	129.2	129.2	130.2	1.0
I	5350	150	615	5.6	131.7	131.7	131.7	0.0
J	5700	150	779	4.5	132.1	132.1	133.1	1.0
POLE CAT BRANCH								
A	250	830	280	2.6	126.5	126.3 ³	127.3	1.0
B	1330	100	143	5.0	127.8	127.8	127.8	0.0
C	1740	105	375	1.9	128.5	128.5	129.5	1.0
D	2480	120	404	1.8	129.4	129.4	130.3	0.9
E	2980	100	226	3.2	130.6	130.6	131.4	0.8

¹FEET ABOVE MOUTH

²ELEVATION WITHOUT CONSIDERING BACKWATER EFFECT FROM LUMBER RIVER

³ELEVATION WITHOUT CONSIDERING BACKWATER EFFECT FROM MEADOW BRANCH

⁴COMBINED FLOODWAY WIDTH OF FIVE MILE BRANCH AND MEADOW BRANCH

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROBESON COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

MEADOW BRANCH-POLE CAT BRANCH

12

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
FIVE MILE BRANCH								
A	850	705	4011	0.9	123.8	117.3 ³	118.3	1.0
B	8350	600	3811	1.0	123.8	121.4 ³	122.1	0.7
C	8940	610	3298	0.9	123.8	121.8 ³	122.8	1.0
D	9600	650 ²	3307	1.0	123.8	122.0 ³	123.0	1.0
E	11,850	300	1773	1.0	125.2	125.2	125.9	0.7
F	12,630	300	1738	1.0	125.3	125.3	126.2	0.9
G	13,910	370	2981	0.4	125.4	125.4	126.4	1.0
H	15,170	370	1718	0.9	125.5	125.5	125.5	1.0
I	16,240	55	263	5.6	126.1	126.1	127.0	0.9
J	16,560	250	817	1.3	129.7	129.7	129.9	0.2
K	17,685	270	944	0.9	131.2	131.2	131.4	0.2
L	18,300	130	665	1.3	133.8	133.8	134.5	0.7
M	18,750	160	646	1.3	134.4	134.4	135.0	0.6
N	19,900	100	441	1.9	136.2	136.2	136.6	0.4
O	20,500	100	435	2.0	137.4	137.4	137.7	0.3
P	22,450	600	1441	0.4	138.4	138.4	139.1	0.7
IVEY BRANCH								
A	650	333	1490	1.6	125.3	125.3	126.3	1.0
B	1640	173	913	2.7	127.6	127.6	128.5	0.9

¹FEET ABOVE MOUTH

²COMBINED FLOODWAY WIDTH OF FIVE MILE BRANCH AND MEADOW BRANCH

³ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM LUMBER RIVER

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROBESON COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

FIVE MILE BRANCH-IVEY BRANCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
SADDLETREE SWAMP								
A	500	450	1802	1.6	123.8	119.3 ²	120.0	0.7
B	2030	724	4436	0.7	123.8	120.2 ²	121.0	0.8
C	2280	770	5237	0.6	123.8	121.5 ²	122.3	0.8
D	3725	800	5103	0.6	123.8	121.7 ²	122.6	0.9
E	7260	1170	5643	0.4	123.8	122.2 ²	123.1	0.9
F	8260	985	4224	0.6	123.8	122.4 ²	123.3	0.9
G	12,070	1140	3881	0.6	124.1	124.1	124.8	0.7
H	14,820	700	2295	1.0	125.8	125.8	126.5	0.7
I	18,090	620	1822	1.0	128.7	128.7	129.4	0.7
J	19,600	630	567	3.4	129.5	129.5	129.7	0.2
K	21,400	430	2103	0.9	134.1	134.1	134.9	0.8
L	21,560	460	3016	0.9	136.4	136.4	136.6	0.2
M	24,300	450	1705	0.5	136.9	136.9	137.4	0.5
N	25,300	330	1254	0.7	137.2	137.2	137.8	0.6
O	26,000	330	1238	0.7	137.4	137.4	138.1	0.7
P	27,050	106	516	1.8	140.3	140.3	141.0	0.7
Q	29,300	412	2101	0.4	141.2	141.2	142.0	0.8
R	32,200	360	680	1.3	142.8	142.8	143.6	0.8
S	32,350	389	1703	0.5	145.7	145.7	146.1	0.4
T	33,960	168	699	0.8	146.2	146.2	146.8	0.6
U	34,140	293	1495	0.4	148.0	148.0	148.3	0.3
V	34,600	293	1501	0.4	148.1	148.1	148.4	0.3
W	35,300	70	198	2.9	148.1	148.1	148.4	0.3
X	36,200	80	301	1.9	150.4	150.4	150.9	0.5
Y	37,000	150	468	1.2	151.3	151.3	152.0	0.7
Z	37,730	100	157	3.7	152.8	152.8	153.7	0.9
AA	37,890	210	483	1.2	154.7	154.7	154.8	0.1
AB	39,100	190	799	0.7	155.5	155.5	156.2	0.7

¹FEET ABOVE MOUTH

²ELEVATION WITHOUT CONSIDERING BACKWATER EFFECT FROM FIVE MILE BRANCH

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROBESON COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

SADDLETREE SWAMP

14

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
SADDLETREE SWAMP TRIBUTARY								
A	1540	290	659	1.2	125.0	125.0	125.9	0.9
B	1840	250	274	2.9	127.8	127.8	128.3	0.5
C	2600	250	892	0.9	130.4	130.4	131.0	0.6
D	3050	200	1006	0.8	131.8	131.8	132.3	0.5
E	4430	200	751	1.1	132.1	132.1	132.8	0.7
F	5480	200	596	1.3	133.5	133.5	134.2	0.7
G	5820	175	1046	0.8	137.3	137.3	137.8	0.5
H	6220	175	963	0.8	137.3	137.3	137.8	0.5
I	7470	140	552	0.9	137.8	137.8	138.4	0.6
J	8000	120	398	1.2	138.2	138.2	138.8	0.6
K	10,120	400	334	1.4	142.0	142.0	142.3	0.3

¹FEET ABOVE MOUTH

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROBESON COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

SADDLETREE SWAMP TRIBUTARY

15-

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
BACK SWAMP								
A	4060	230	883	2.7	131.2	131.2	131.3	0.1
B	12,050	650	1976	1.2	134.4	134.4	135.4	1.0
C	14,200	1523	5123	0.5	135.1	135.1	136.1	1.0
D	21,400	318	949	2.1	137.6	137.6	138.6	1.0
E	23,830	710	2121	0.9	140.1	140.1	141.1	1.0
F	27,700	281	1610	1.2	142.1	142.1	143.1	1.0
G	32,740	450	1672	0.9	144.4	144.4	145.3	0.9
H	35,800	260	876	1.7	146.0	146.0	146.9	0.9
I	40,377	233	883	1.6	151.0	151.0	151.5	0.5
J	43,300	925	2538	0.6	152.2	152.2	153.1	0.9
K	45,892	40	508	2.9	153.5	153.5	154.5	1.0
L	48,000	796	2220	0.4	154.5	154.5	155.4	0.9
M	51,200	400	984	1.0	155.3	155.3	156.2	0.9
N	53,337	33	360	2.8	157.2	157.2	157.5	0.3
O	56,500	770	1815	0.5	157.8	157.8	158.7	0.9
P	58,000	386	1107	0.9	158.1	158.1	159.1	1.0
Q	62,000	550	1577	0.6	159.8	159.8	160.8	1.0
R	65,500	645	556	1.1	161.5	161.5	162.4	0.9
S	73,000	670	1163	0.5	167.3	167.3	167.7	0.4
T	75,150	670	1665	0.4	168.3	168.3	169.3	1.0
U	80,100	34	162	1.9	169.8	169.8	170.6	0.8
V	86,000	228	376	0.8	175.4	175.4	176.2	0.8

¹FEET ABOVE MOUTH

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROBESON COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

BACK SWAMP

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
BEAR SWAMP								
A	1400	238	795	2.7	127.6	123.0 ²	123.4	0.4
B	2260	220	1060	2.0	127.7	126.3 ²	127.1	0.8
C	2430	370	1940	1.1	127.8	127.4 ²	128.4	1.0
D	8500	870	2073	1.0	130.6	130.6 ²	130.9	0.3
E	11,500	1065	3807	0.6	132.7	132.7	133.6	0.9
F	14,200	705	2050	0.9	134.9	134.9	135.5	0.6
G	14,370	650	2796	0.7	136.8	136.8	137.0	0.2
H	16,800	1013	3604	0.5	137.7	137.7	138.1	0.4
I	19,300	580	2496	0.8	139.7	139.7	140.7	1.0
J	20,350	100	865	2.2	143.7	143.7	143.9	0.2
K	27,500	790	2748	0.5	145.3	145.3	145.7	0.4
L	31,950	125	620	2.2	150.6	150.6	150.8	0.2
M	33,010	470	2760	0.5	152.6	152.6	152.8	0.2
N	36,500	200	824	1.7	154.0	154.0	154.1	0.1
O	40,700	147	984	1.4	158.5	158.5	159.1	0.6
P	43,860	160	827	1.2	161.1	161.1	161.9	0.8
Q	44,060	321	1304	0.8	161.2	161.2	162.1	0.9
R	44,950	150	688	1.5	162.3	162.3	163.1	0.8
S	45,100	100	1272	0.8	170.3	170.3	170.8	0.5
T	47,700	590	5884	0.2	170.3	170.3	170.8	0.5
U	50,750	250	1233	0.8	170.7	170.7	171.3	0.6
V	53,700	252	997	1.0	173.6	173.6	174.6	1.0
W	57,790	383	1332	0.5	178.8	178.8	179.6	0.8
X	60,300	154	591	1.2	180.7	180.7	181.5	0.8

¹FEET ABOVE MOUTH

²ELEVATION WITHOUT CONSIDERING OVERFLOW EFFECT FROM LUMBER RIVER

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROBESON COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

BEAR SWAMP

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
JACOB SWAMP								
A	5700	635	2019	0.8	110.5	107.6 ²	108.1	0.5
B	10,520	578	951	1.7	112.9	110.9 ²	111.8	0.9
C	12,330	895	3016	0.5	114.0	111.8 ²	112.8	1.0
D	13,975	135	804	2.3	114.3	112.5 ²	113.5	1.0
E	16,275	652	2227	0.6	114.4	114.1 ²	114.9	0.8
F	19,110	70	247	2.6	114.5	114.5	115.4	0.9
G	21,650	230	765	0.8	116.6	116.6	117.3	0.7
H	25,370	475	1740	0.3	119.2	119.2	120.1	0.9
I	29,260	241	694	0.8	120.0	120.0	120.7	0.7
J	35,850	151	322	1.0	123.7	123.7	124.1	0.4
K	39,270	865	3051	0.2	124.2	124.2	124.6	0.4
L	43,200	608	2072	0.2	124.3	124.3	124.8	0.5
M	47,240	55	259	1.2	129.6	129.6	129.6	0.0
N	48,430	170	406	0.7	132.1	132.1	132.9	0.8
LITTLE JACOB SWAMP								
A	1500	450	1336	0.7	114.0	113.5 ³	114.2	0.7
B	2175	203	452	1.9	114.0	113.5 ³	114.2	0.7
C	3010	350	1012	0.8	116.0	116.0	116.6	0.6
D	3960	408	1161	0.7	116.3	116.3	117.0	0.7
E	5350	192	647	1.2	116.8	116.8	117.6	0.8
F	9560	148	442	1.5	119.6	119.6	120.2	0.6
G	17,400	301	688	1.0	123.9	123.9	124.9	1.0
H	19,110	528	1559	0.2	124.9	124.9	125.6	0.7
I	20,760	207	1792	0.2	124.9	124.9	125.7	0.8

¹FEET ABOVE MOUTH

²ELEVATION WITHOUT CONSIDERING BACKWATER EFFECT FROM LUMBER RIVER

³ELEVATION WITHOUT CONSIDERING BACKWATER EFFECT FROM JACOB SWAMP

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS

FLOODWAY DATA

JACOB SWAMP-LITTLE JACOB SWAMP

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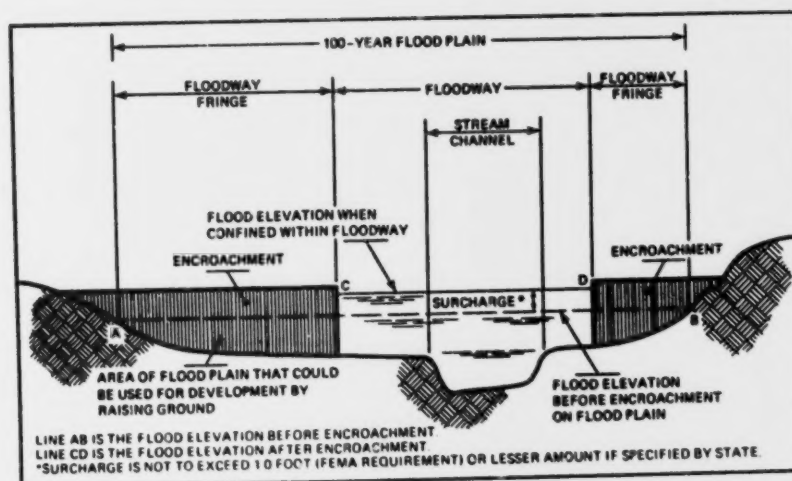


FIGURE 2 - Floodway Schematic

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 foot and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 100-year floodplain, areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols the 100- and 500-year floodplains, the floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

The current Flood Insurance Rate Map presents flooding information for the geographic area of Robeson County. Previously, separate Flood Hazard Boundary Maps and/or Flood Insurance Rate Maps were prepared for each flood-prone incorporated community and the unincorporated areas of the county. Historical data relating to the maps prepared for each community are presented in Table 3, Community Map History.

7.0 OTHER STUDIES

Flood Insurance Studies published for Cumberland County and Hoke County, North Carolina (References 10 and 11) are in agreement with this study.

A Flood Insurance Study in progress for Scotland County, North Carolina (Reference 12) is in agreement with this study.

This Flood Insurance Study supersedes the previously published Flood Insurance Study for the City of Lumberton (Reference 1); the previously printed Flood Insurance Rate Map for the Town of Red Springs (Reference 2); and the previously printed Flood Hazard Boundary Maps for Robeson County and the Towns of Fairmont and Orrum (References 3-5).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, FEMA, 1371 Peachtree Street, NE, Suite 736, Atlanta, Georgia 30309.

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
FAIRMONT, TOWN OF	FEBRUARY 15, 1974	SEPTEMBER 24, 1976 JULY 18, 1980	SEPTEMBER 1, 1987	DECEMBER 24, 1982
LUMBER BRIDGE, TOWN OF	FEBRUARY 17, 1989		FEBRUARY 17, 1989	
LUMBERTON, CITY OF	JUNE 28, 1974	APRIL 15, 1977	NOVEMBER 5, 1980	
ORRUM, TOWN OF	APRIL 25, 1975		FEBRUARY 17, 1989	
PARKTON, TOWN OF	FEBRUARY 17, 1989		FEBRUARY 17, 1989	
RED SPRINGS, TOWN OF	APRIL 1, 1977	AUGUST 1, 1980	MAY 1, 1987	
UNINCORPORATED AREAS	JULY 28, 1978		FEBRUARY 17, 1989	

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROBESON COUNTY, NC
AND INCORPORATED AREAS**

COMMUNITY MAP HISTORY

9.0 REFERENCES AND BIBLIOGRAPHY

1. Federal Emergency Management Agency, Flood Insurance Study, City of Lumberton, Robeson County, North Carolina, December 1982.
2. ———, Flood Insurance Rate Map, Town of Red Springs, Robeson County, North Carolina, May 1987.
3. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Robeson County, Unincorporated Areas, North Carolina, July 1978.
4. Federal Emergency Management Agency, Federal Insurance Administration, Flood Hazard Boundary Map, Town of Fairmont, Robeson County, North Carolina, July 1980.
5. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Town of Orrum, Robeson County, North Carolina, April 1976.
6. U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population, Number of Inhabitants, North Carolina, Washington, D.C., February 1982.
7. U.S. Army Corps of Engineers, Wilmington District, Composite Hydrologic Study of Floods in the Coastal Plain and Piedmont Areas of North Carolina, Nathan O. Thomas, February 1978.
8. Kucera and Associates, Inc., Strip Aerial Photography of Robeson County, Mentor, Ohio, 1985.
9. U.S. Geological Survey, 7.5 Minute Series Topographic Maps, Scale 1:24000, Contour Interval 5 Feet: Fair Bluff, North Carolina, 1962; Fairmont, North Carolina, 1962; Southwest Lumberton, North Carolina, 1972; Northwest Lumberton, North Carolina, 1972; McDonald, North Carolina, 1972; Pembroke, North Carolina, 1972; and Maxton, North Carolina, 1974.
10. Federal Emergency Management Agency, Flood Insurance Study, Cumberland County, Unincorporated Areas, North Carolina, February 1982.
11. ———, Flood Insurance Study, Hoke County, Unincorporated Areas, North Carolina, December 1985.
12. ———, Flood Insurance Study, Scotland County, Unincorporated Areas, North Carolina, in progress.

ELEVATION REFERENCE MARKS

REFERENCE MARK	FLOOD INSURANCE RATE MAP PANEL	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
1	0055	202.37	railroad spike set flush in post located on southeast side of SR 1310 bridge over the Lumber River
2	0065	188.05	chiseled square in curb located on southeast corner of State Road 71 bridge over the Lumber River
3	0065	184.00	railroad spike in southeast trestle of CSX railroad bridge over the Lumber River
4	0065	182.00	chiseled square in top of curb located on southeast corner of SR 1303 bridge over the Lumber River
5	0070	177.78	railroad spike set flush in creosote post on wingwall located on northeast corner of SR 1153 bridge over the Lumber River
6	0070	177.92	chiseled square in southeast wingwall of CSX railroad bridge over the Lumber River
7	0135	163.80	chiseled square in top of headwall located on northeast corner of SR 1166 bridge over Back Swamp
8	0135	168.23	chiseled square in top of headwall located on southwest corner of SR 1188 bridge over Back Swamp
9	0155	163.66	chiseled square in abutment located on northeast corner of SR 1354 bridge over the Lumber River
10	0155	162.07	highway disk in traffic island at intersection of U.S. Route 74 and State Road 710
11	0155	166.84	chiseled square in wingwall located on northeast corner of State Road 710 bridge over the Lumber River

ELEVATION REFERENCE MARKS (Continued)

<u>REFERENCE MARK</u>	<u>FLOOD INSURANCE RATE MAP PANEL</u>	<u>ELEVATION (FEET NGVD)</u>	<u>DESCRIPTION OF LOCATION</u>
12	0155	160.47	D-74 disk in northern abutment of CSX railroad bridge over the Lumber River
13	0155	152.00	railroad spike in northwest wingwall piling of SR 1554 bridge over the Lumber River
14	0155	151.04	chiseled square in northeast wingwall of SR 1003 bridge over the Lumber River
15	0155	159.00	chiseled square in top of curb located on northeast corner of State Road 710 bridge over Back Swamp
16	0155	170.21	railroad spike in centerline of SR 1515 over double culverts for Bear Swamp
17	0165	152.30	chiseled square in top of curb located on northeast corner of SR 1157 bridge over Back Swamp
18	0165	144.17	chiseled square in top of curb located on northeast corner of SR 1003 bridge over Back Swamp
19	0165	155.45	railroad spike in railroad tie located on northeast corner CSX railroad trestle over Back Swamp
20	0095	141.33	chiseled square in top of curb located on southeast corner of SR 1766 bridge over Saddletree Swamp
21	0095	145.72	railroad spike located in centerline of SR 1531 bridge over Saddletree Swamp
22	0095	154.21	railroad spike located in centerline of SR 1758 over Saddletree Swamp
23	0160	152.63	railroad spike in creosote post located in southeast wingwall of SR 1003 bridge over Bear Swamp

ELEVATION REFERENCE MARKS (Continued)

<u>REFERENCE MARK</u>	<u>FLOOD INSURANCE RATE MAP PANEL</u>	<u>ELEVATION (FEET NGVD)</u>	<u>DESCRIPTION OF LOCATION</u>
24	0160	156.26	disk stamped "HLZ 120 1971, U.S. Geological Survey," located at northeast corner of Intersection of U.S. Route 711 and SR 1567
25	0170	139.63	chiseled square in top of curb located on northeast corner of SR 1550 bridge over the Lumber River
26	0170	139.95	chiseled square in top of curb located on northeast corner of SR 1160 bridge over Back Swamp
27	0170	135.74	chiseled square in top of curb located on northeast corner of SR 1164 bridge over Back Swamp
28	0170	139.73	disk stamped "121 HLZ 1971, BM#139-7 U.S. Geological Survey," in curb located on northeast corner of SR 1550 bridge over Bear Swamp
29	0170	128.38	chiseled square in top of curb located on northeast corner of SR 1339 bridge over Bear Swamp
30	0170	132.77	chiseled square in northeast corner of Old U.S. Route 301 bridge over Back Swamp
31	0170	120.26	chiseled square in headwall located on northeast corner of SR 2513 bridge over Jacob Swamp
32	0170	121.17	railroad spike in centerline of SR 2513 bridge over Little Jacob Swamp, about 0.2 mile from intersection of SR 2505 and SR 2513
33	0170	150.97	railroad spike in power pole with transformer located about 0.8 mile northwest of intersection of SR 1550 and SR 1339
34	0178	122.51	chiseled square in top of headwall on west side of Interstate 95 bridge over Five Mile Branch

ELEVATION REFERENCE MARKS (Continued)

<u>REFERENCE MARK</u>	<u>FLOOD INSURANCE RATE MAP PANEL</u>	<u>ELEVATION (FEET NGVD)</u>	<u>DESCRIPTION OF LOCATION</u>
35	0178	123.99	chiseled square in top of curb on west side of Fuller Avenue at dead end near Meadow Branch
36	0179	131.37	chiseled square in top of headwall on east side of Fayetteville Road bridge over Pole Cat Branch
37	0179	127.32	chiseled square in top of headwall on west side of Fayetteville Road bridge over Ivey Branch
38	0179	129.91	chiseled square in top of headwall at southwest corner of Fayetteville Road culvert over Meadow Branch
39	0186	125.66	chiseled square in top of bridge pier on northwest end of Cottonwood Street bridge over the Lumber River
40	0186	127.56	chiseled square in top of headwall on northeast corner of State Road 72 bridge over the Lumber River
41	0186	122.51	chiseled arrow in top of fire hydrant at southwest corner of intersection of West Drive and Hedge Drive
42	0186	126.95	chiseled square in top of rail on west corner of Interstate 95 southbound lane bridge over the Lumber River
43	0186	118.35	chiseled square in top of bridge girder on southeast corner of Fairmont Road bridge over Gum Branch Canal
44	0186	117.63	chiseled square in top of wheelguard on southwest corner of Fairmont Road bridge over Cotton Mill Branch

ELEVATION REFERENCE MARKS (Continued)

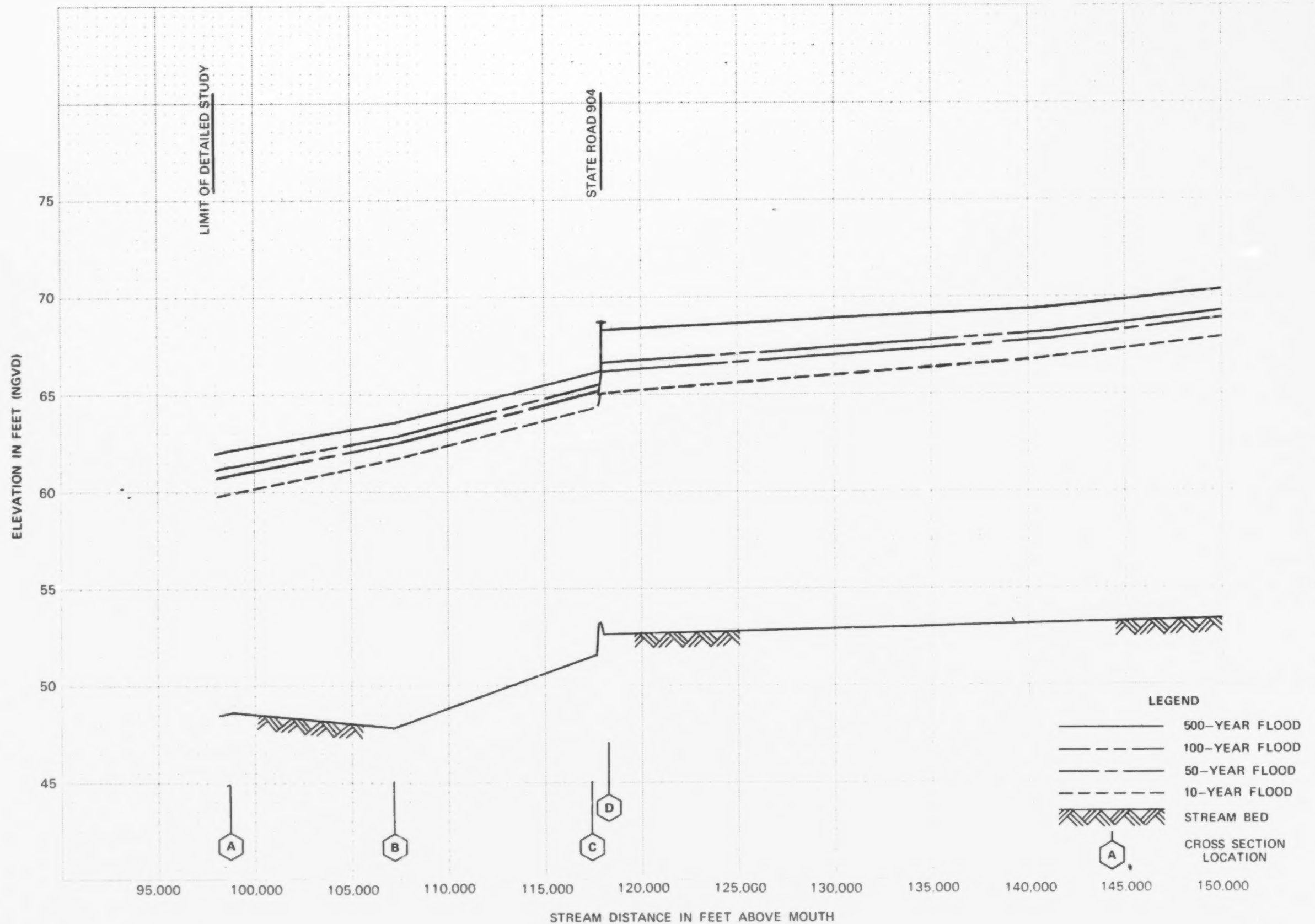
<u>REFERENCE MARK</u>	<u>FLOOD INSURANCE RATE MAP PANEL</u>	<u>ELEVATION (FEET NGVD)</u>	<u>DESCRIPTION OF LOCATION</u>
45	0186	136.93	standard U.S. Coast and Geodetic Survey disk stamped "U30 1932" set vertically in south wall of fire station located at southeast corner of Second Street and Elm Street
46	0186	119.15	chiseled square in top of headwall on south side of Biggs Road culvert over Gum Branch
47	0186	114.81	chiseled square in top of right-of-way marker located 240 feet northwest of intersection of SR 2203 and SR 2289
48	0190	119.75	chiseled square in headwall located on northeast corner of State Road 41 bridge over Little Jacob Swamp
49	0190	114.37	chiseled square in sandbag headwall located on northwest corner of SR 2204 bridge over Little Jacob Swamp
50	0190	121.68	chiseled square in headwall located on northeast corner of State Road 41 bridge over Jacob Swamp
51	0190	117.16	chiseled square in abutment located on SR 2204 bridge over Jacob Swamp
52	0190	117.03	2-inch square in wingwall located on northeast corner of SR 2289 bridge over Jacob Swamp
53	0190	112.75	railroad spike in creosote post located on southeast wingwall of SR 2305 bridge over Jacob Swamp
54	0190	111.77	chiseled square in northeast headwall of Wilmington Highway bridge over Old Jacob Swamp
55	0090	179.09	railroad spike in centerline of SR 1577 culvert over Bear Swamp

ELEVATION REFERENCE MARKS (Continued)

<u>REFERENCE MARK</u>	<u>FLOOD INSURANCE RATE MAP PANEL</u>	<u>ELEVATION (FEET NGVD)</u>	<u>DESCRIPTION OF LOCATION</u>
56	0280	122.705	brass disk marked "Long Branch Ref. No. 4 Date 1933" set in 1-foot-square post located at southeast corner of SR 1620 and SR 2216
57	0280	99.95	spike with cog head set flush in bridge abutment post located on southeast side of SR 2123 bridge over the Lumber River
58	0280	98.80	spike with cog head set flush in southeast wingwall piling of SR 2121 bridge over the Lumber River
59	0280	118.81	spike with cog head in power pole number 7963, located in northwest corner of SR 1620 and SR 2121
60	0340	69.11	spike with cog head set flush in wingwall piling located on south side of SR 2256 bridge over canal at intersection of SR 2256 and State Road 904
61	0330	98.27	spike with cog head in 36-inch pine tree located north of intersection of SR 2256 and SR 2251
62	0290	88.05	chiseled square in traffic island at intersection of SR 1620 and U.S. Route 74
63	0290	82.93	spike in power pole located on west side of SR 1620, about 1.0 mile north of intersection of SR 1620 and U.S. Route 74
64	0335	125.93	spike with cog head in power pole located on northwest corner of SR 2250 and SR 2247
65	0187	121.62	chiseled square in top of rail on northwest corner of Chippewa Street bridge over the Lumber River

ELEVATION REFERENCE MARKS (Continued)

<u>REFERENCE MARK</u>	<u>FLOOD INSURANCE RATE MAP PANEL</u>	<u>ELEVATION (FEET NGVD)</u>	<u>DESCRIPTION OF LOCATION</u>
66	0180	135.66	chiseled square in top of curb located on southwest corner of SR 1529 bridge over Saddletree Swamp



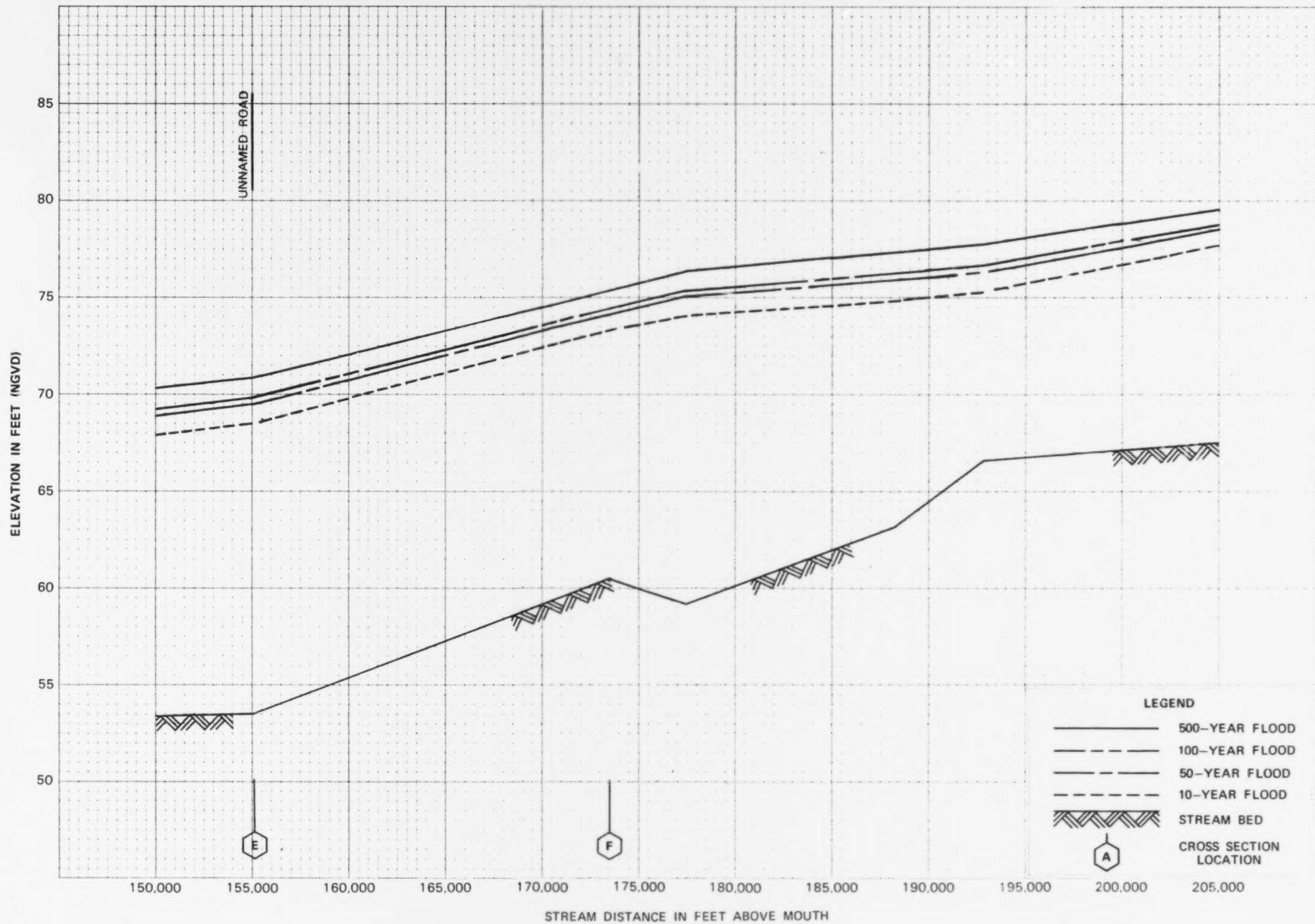
FLOOD PROFILES

LUMBER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC

AND INCORPORATED AREAS



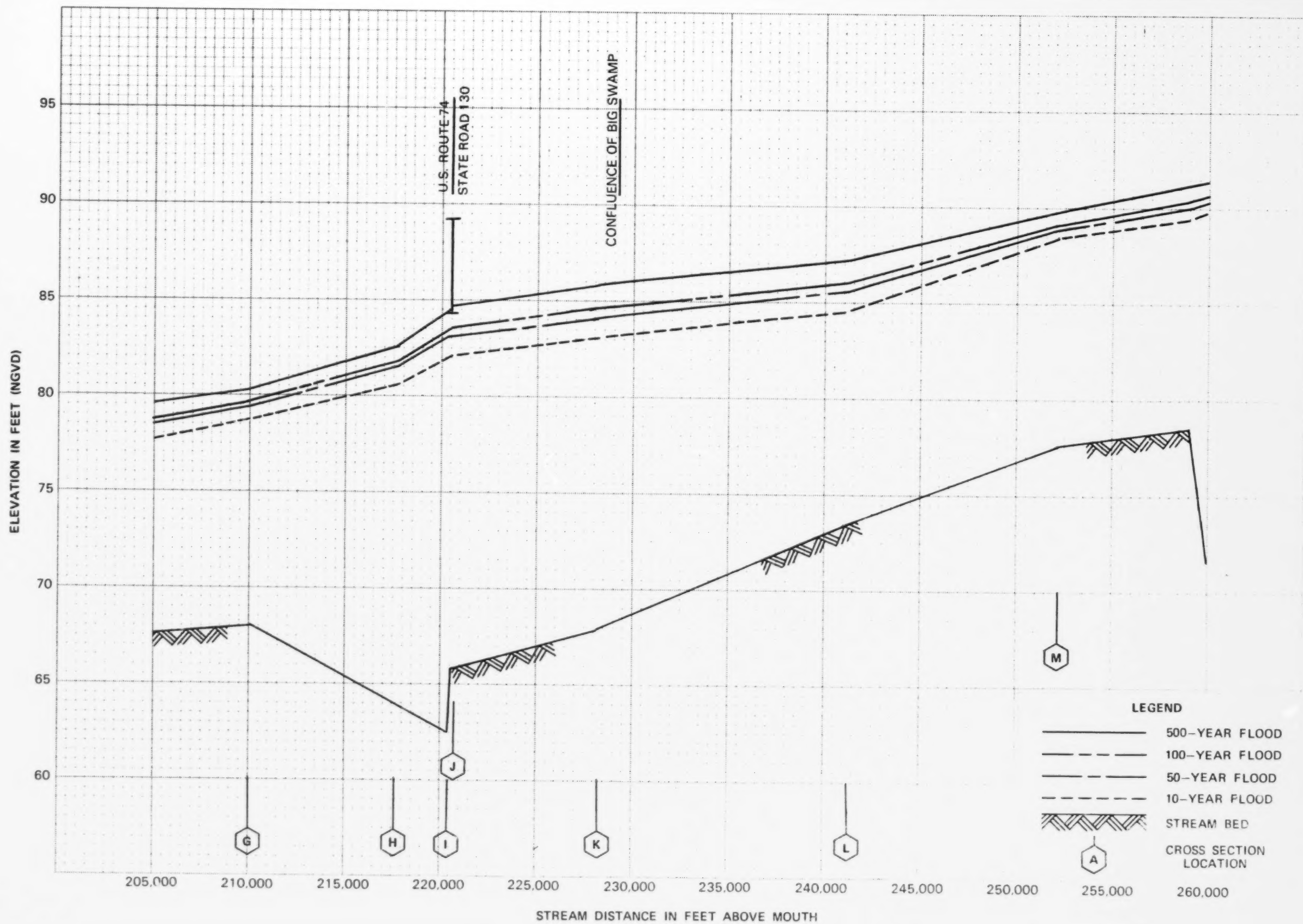
FLOOD PROFILES

LUMBER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS

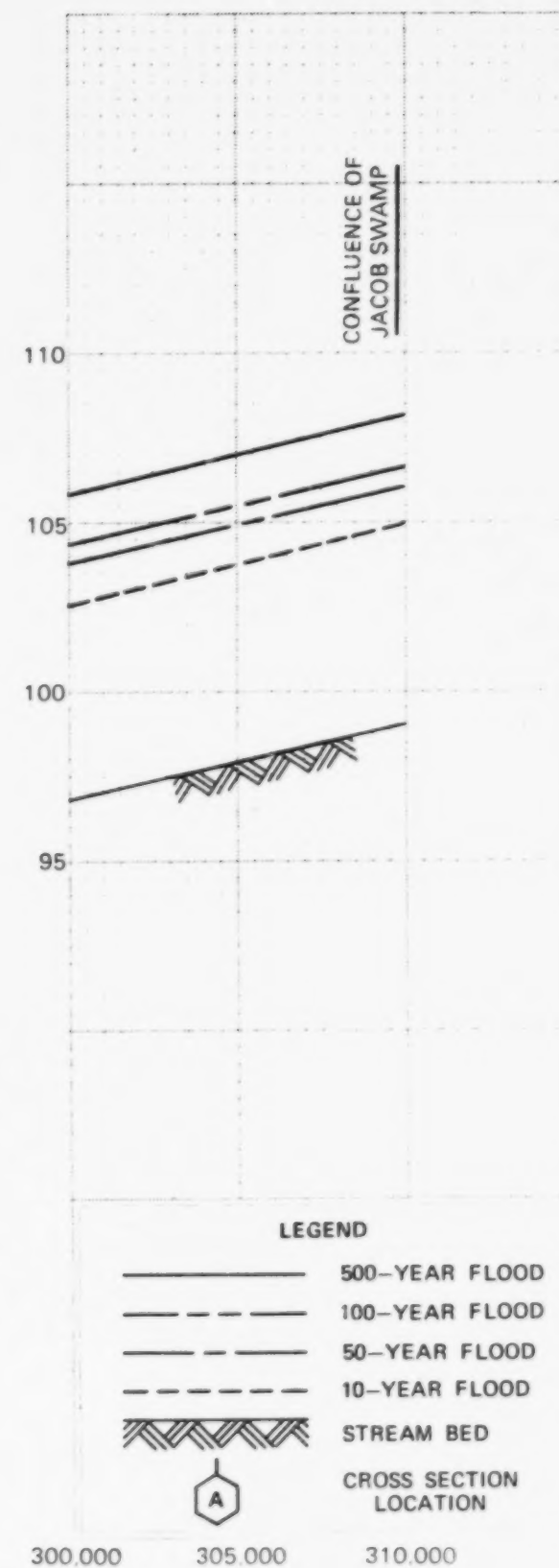
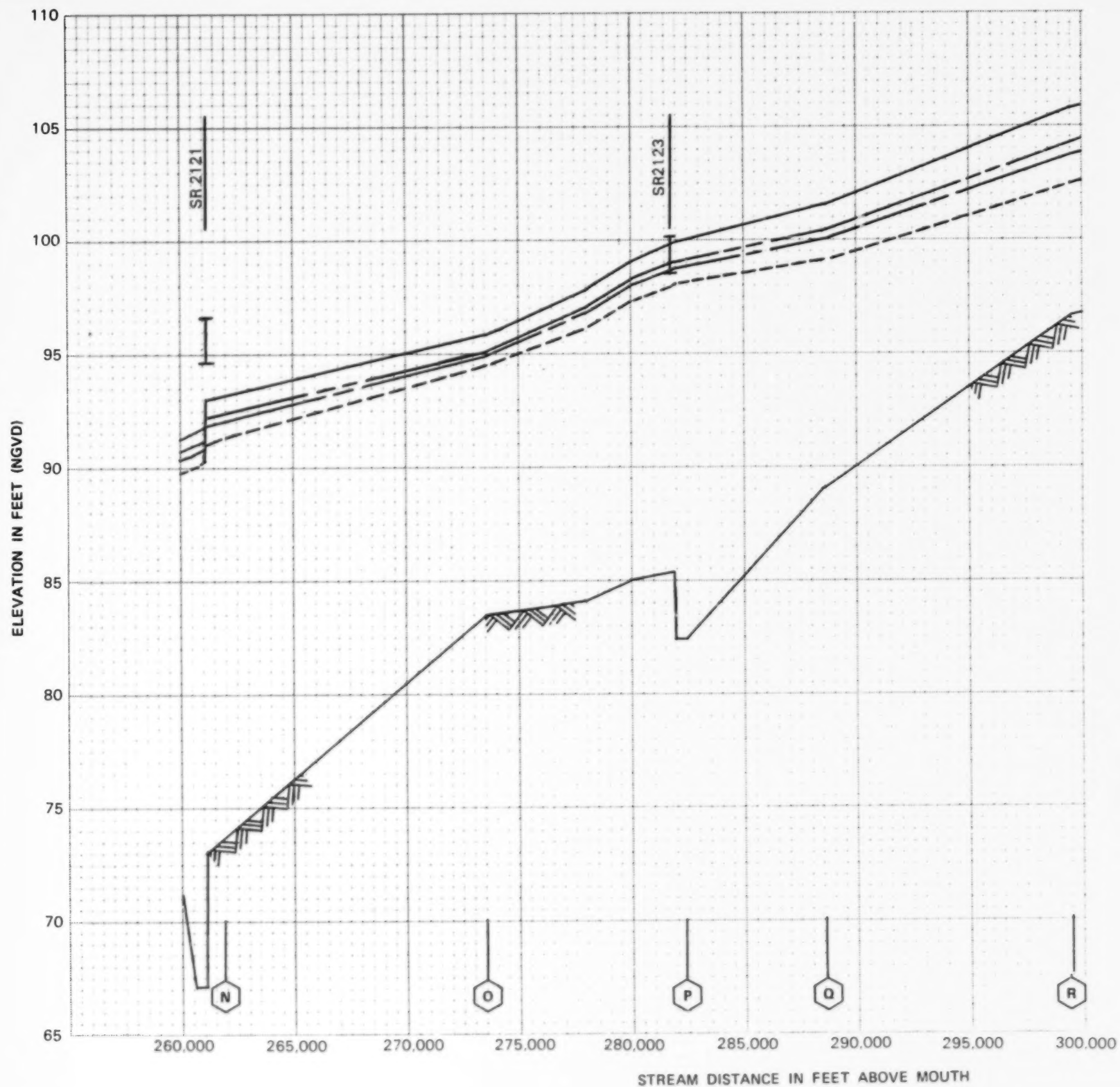
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FLOOD PROFILES

LUMBER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
**ROBESON COUNTY, NC
 AND INCORPORATED AREAS**



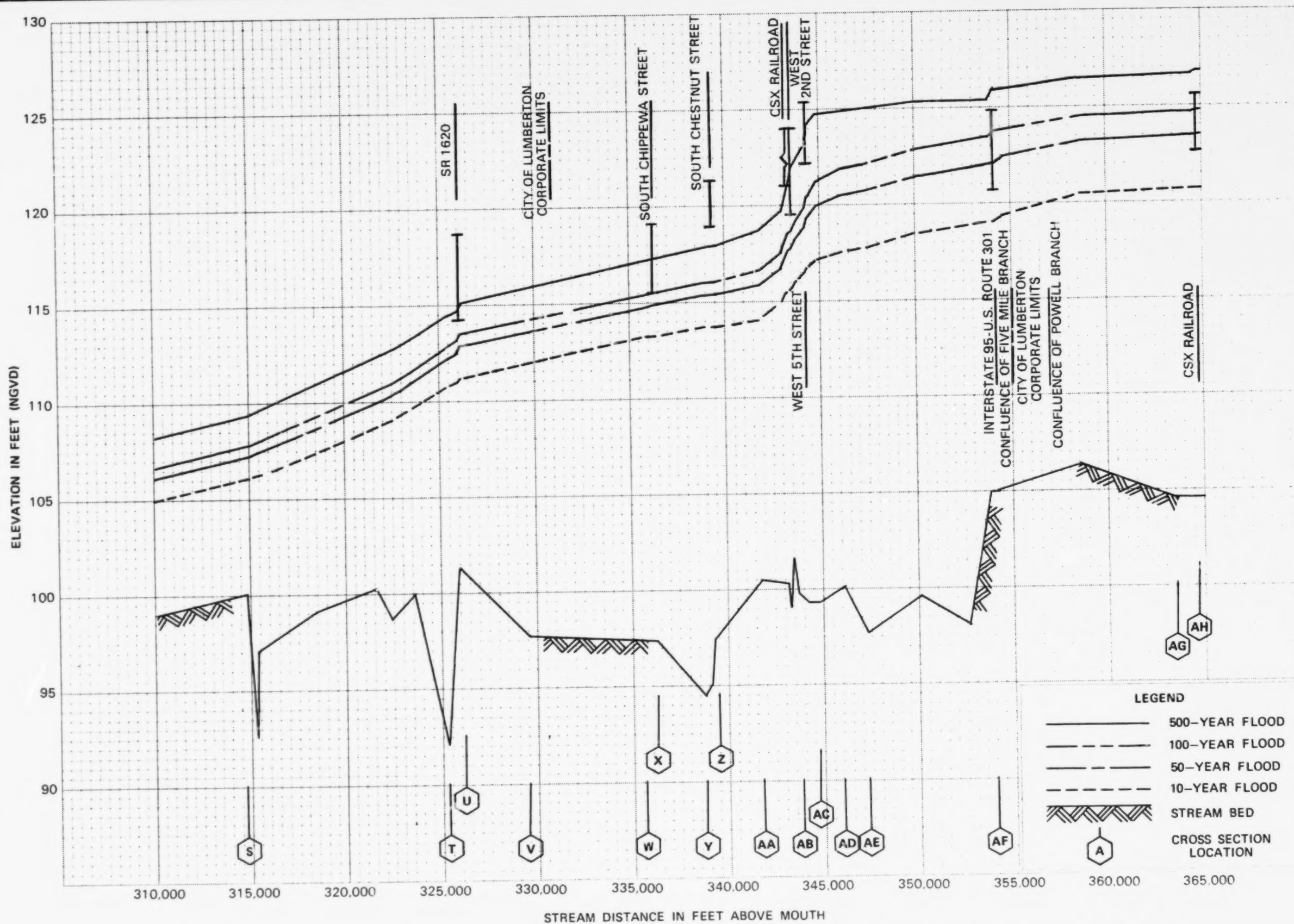
FLOOD PROFILES

LUMBER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS

04P



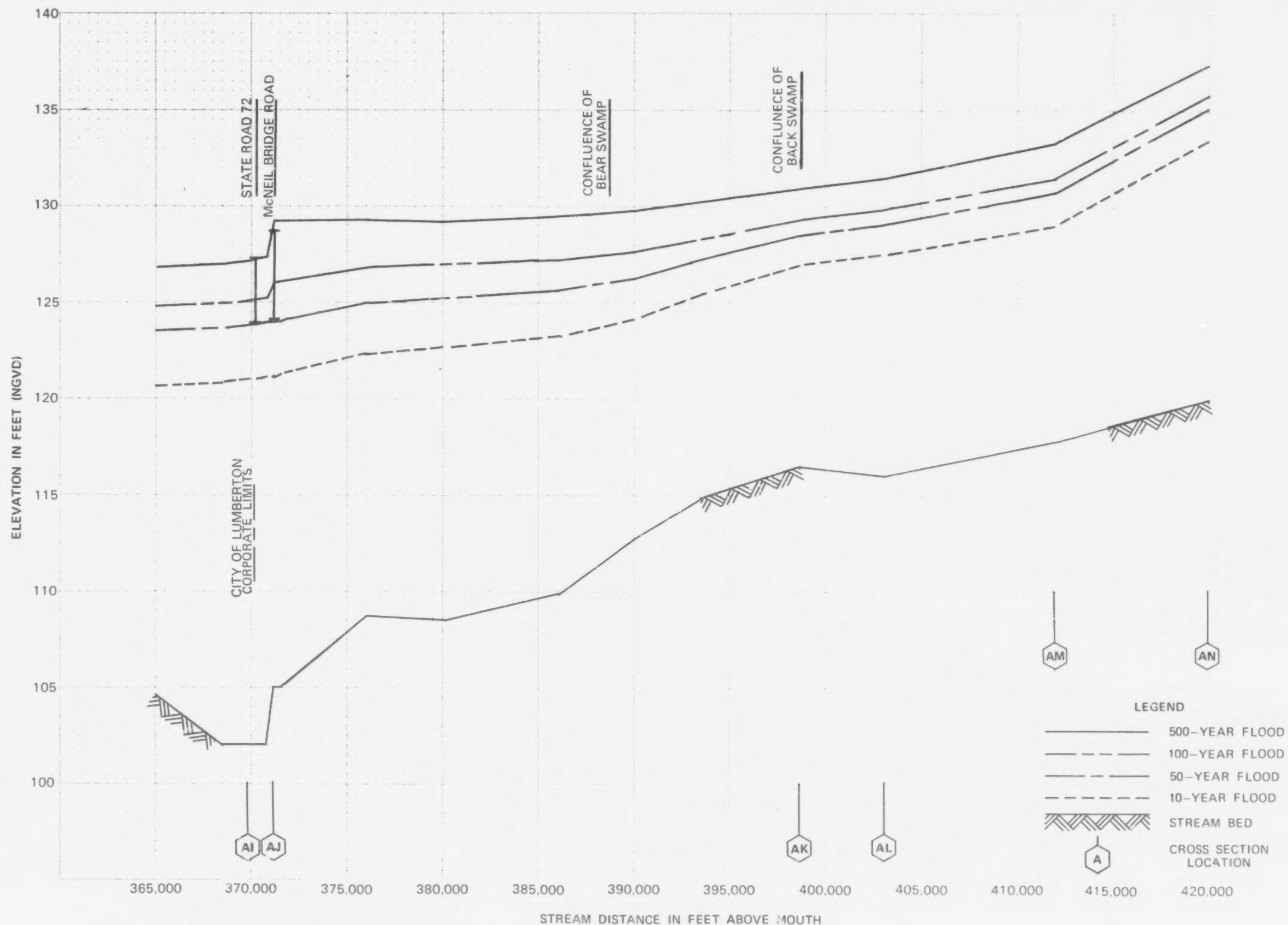
FLOOD PROFILES

LUMBER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS

05P



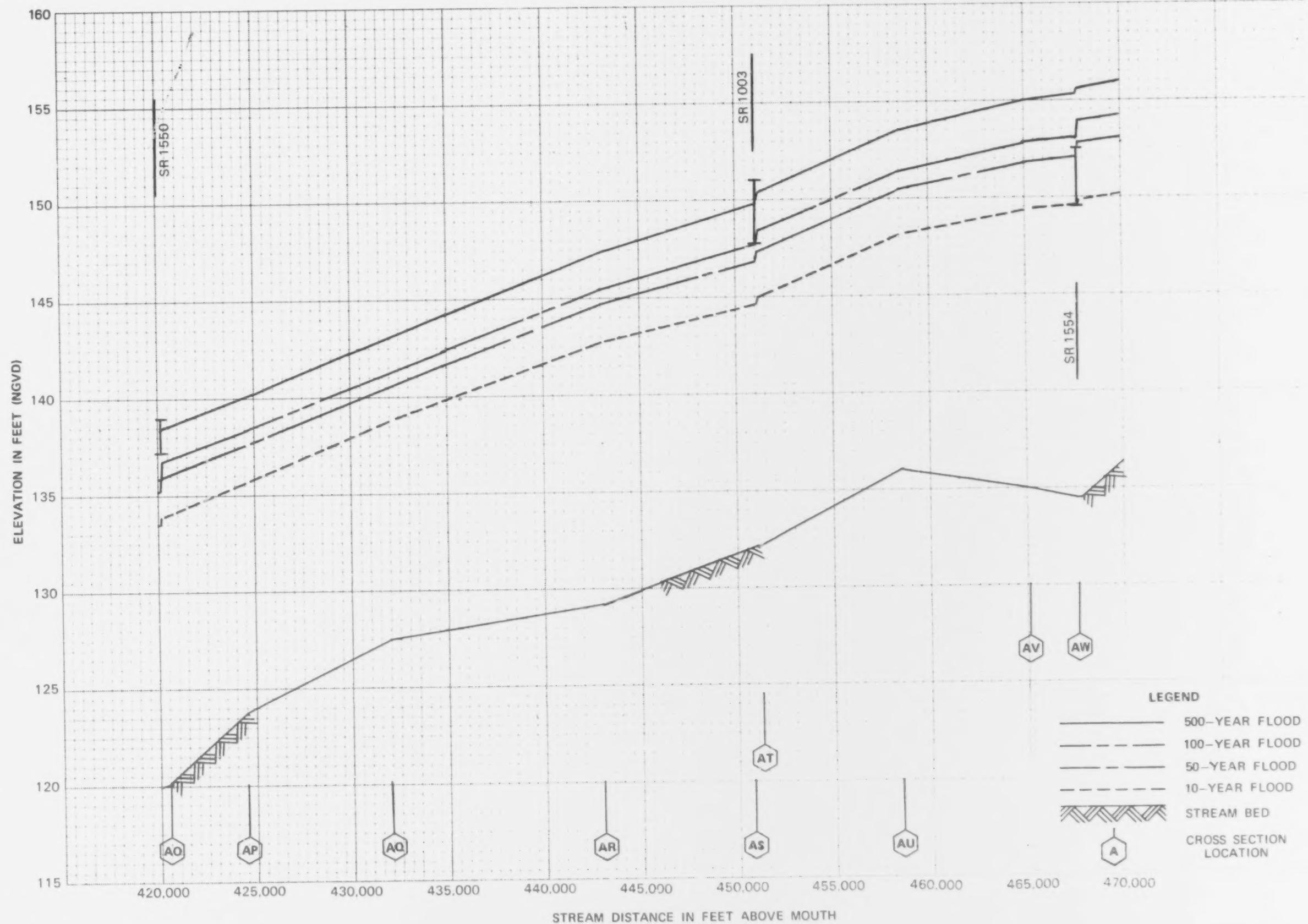
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LUMBER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS

06P

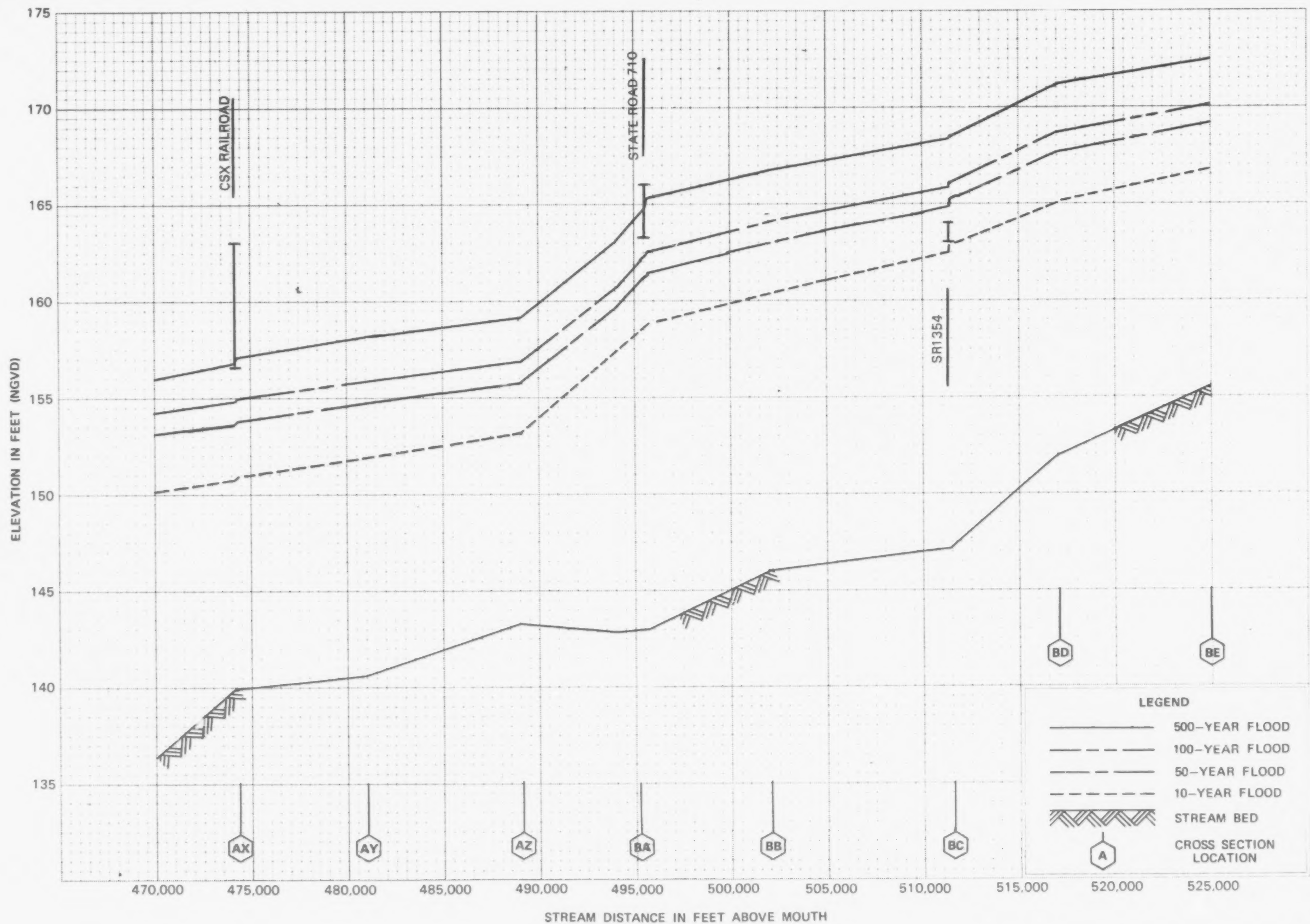


FLOOD PROFILES

LUMBER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
ROBESON COUNTY, NC
AND INCORPORATED AREAS

07P



FLOOD PROFILES

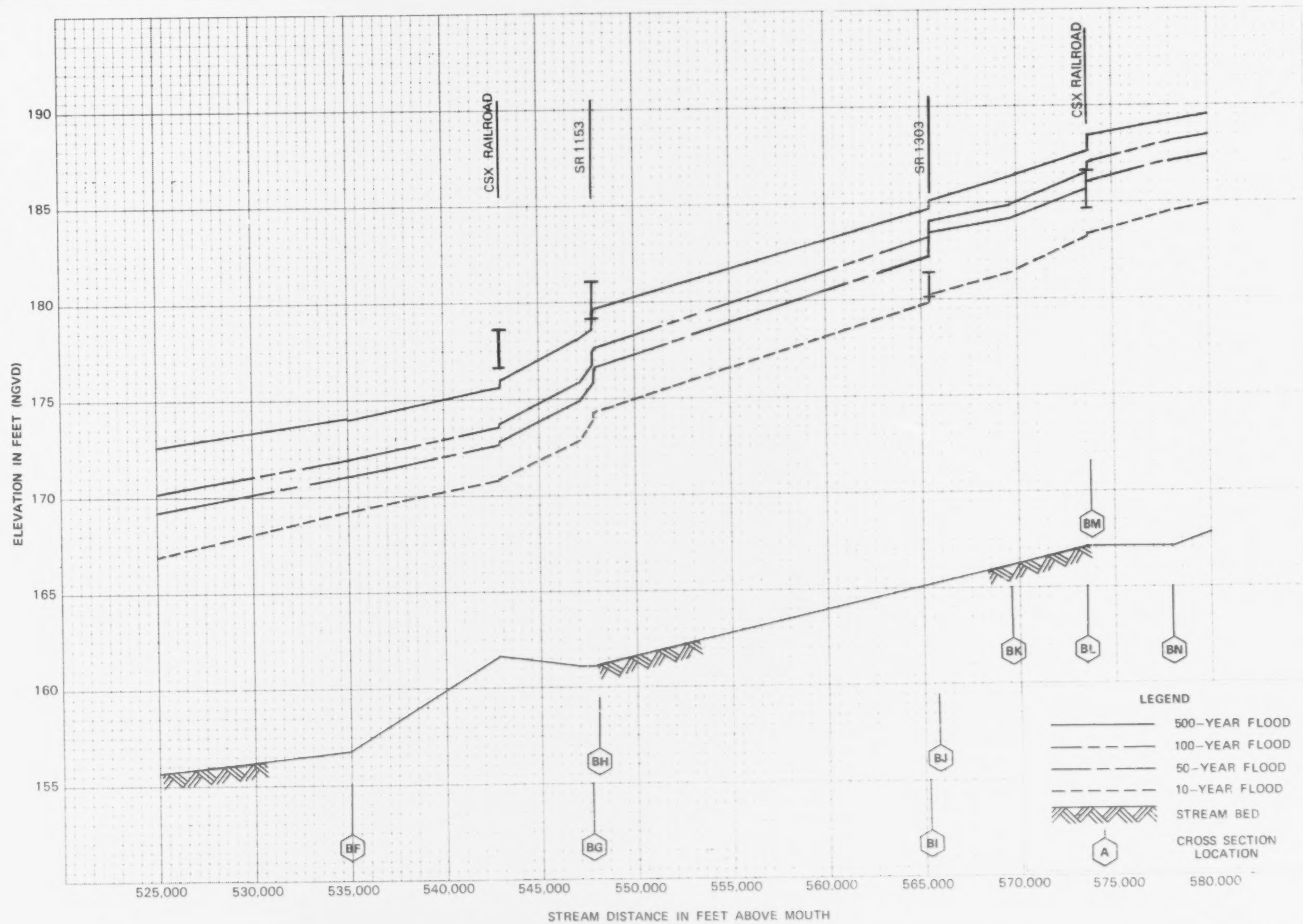
LUMBER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS

08P

32

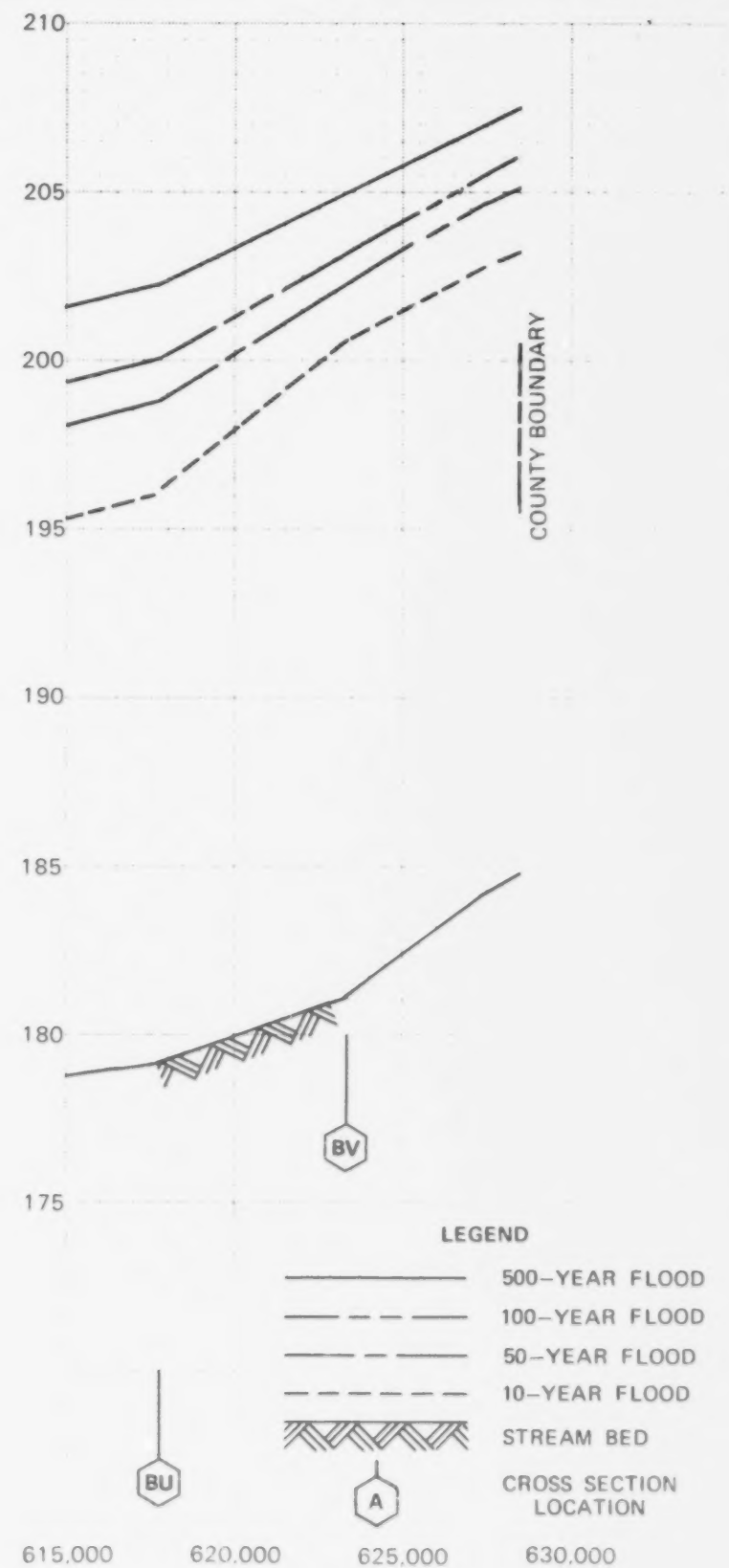
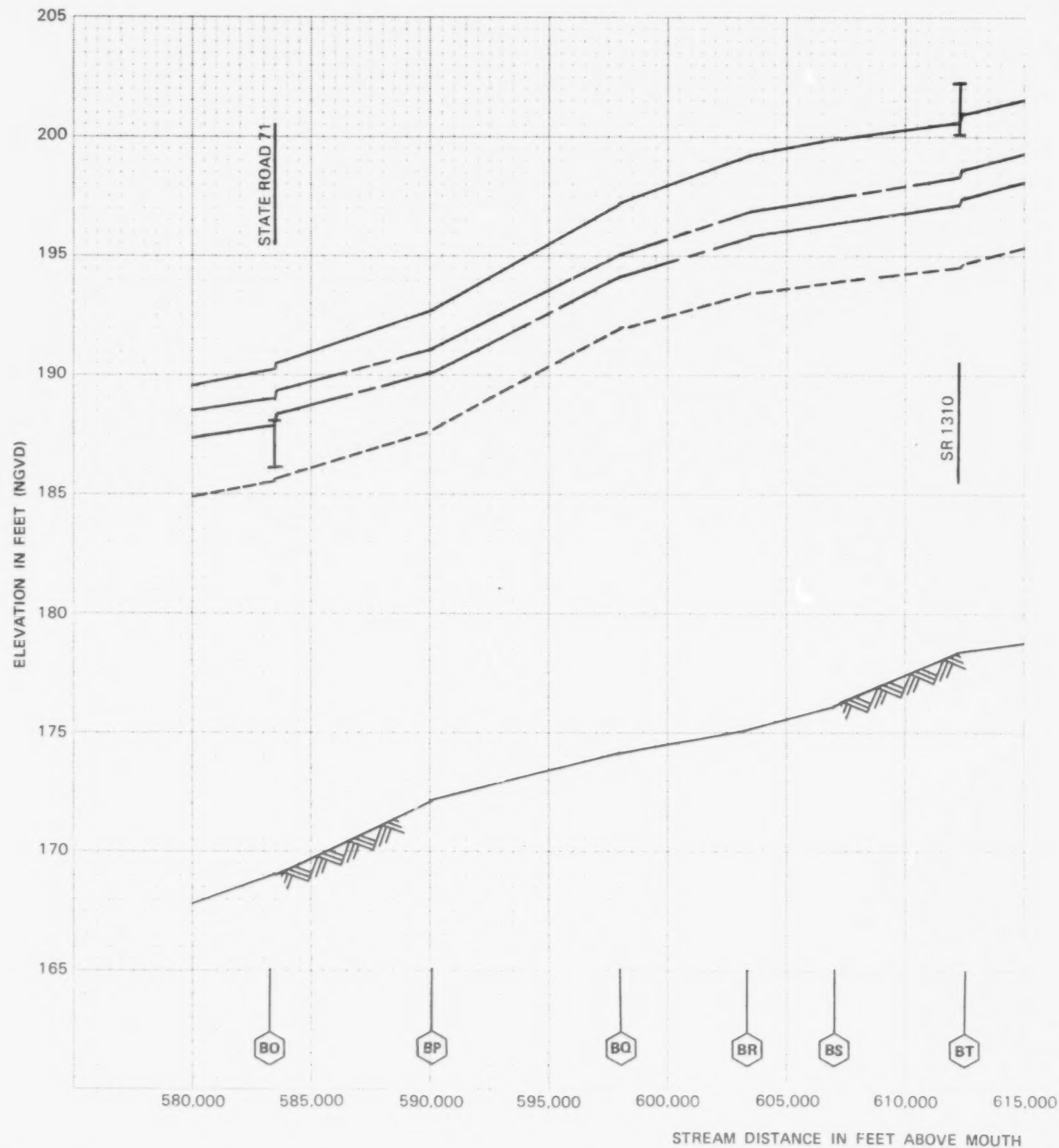


FLOOD PROFILES

LUMBER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROBESON COUNTY, NC
AND INCORPORATED AREAS**

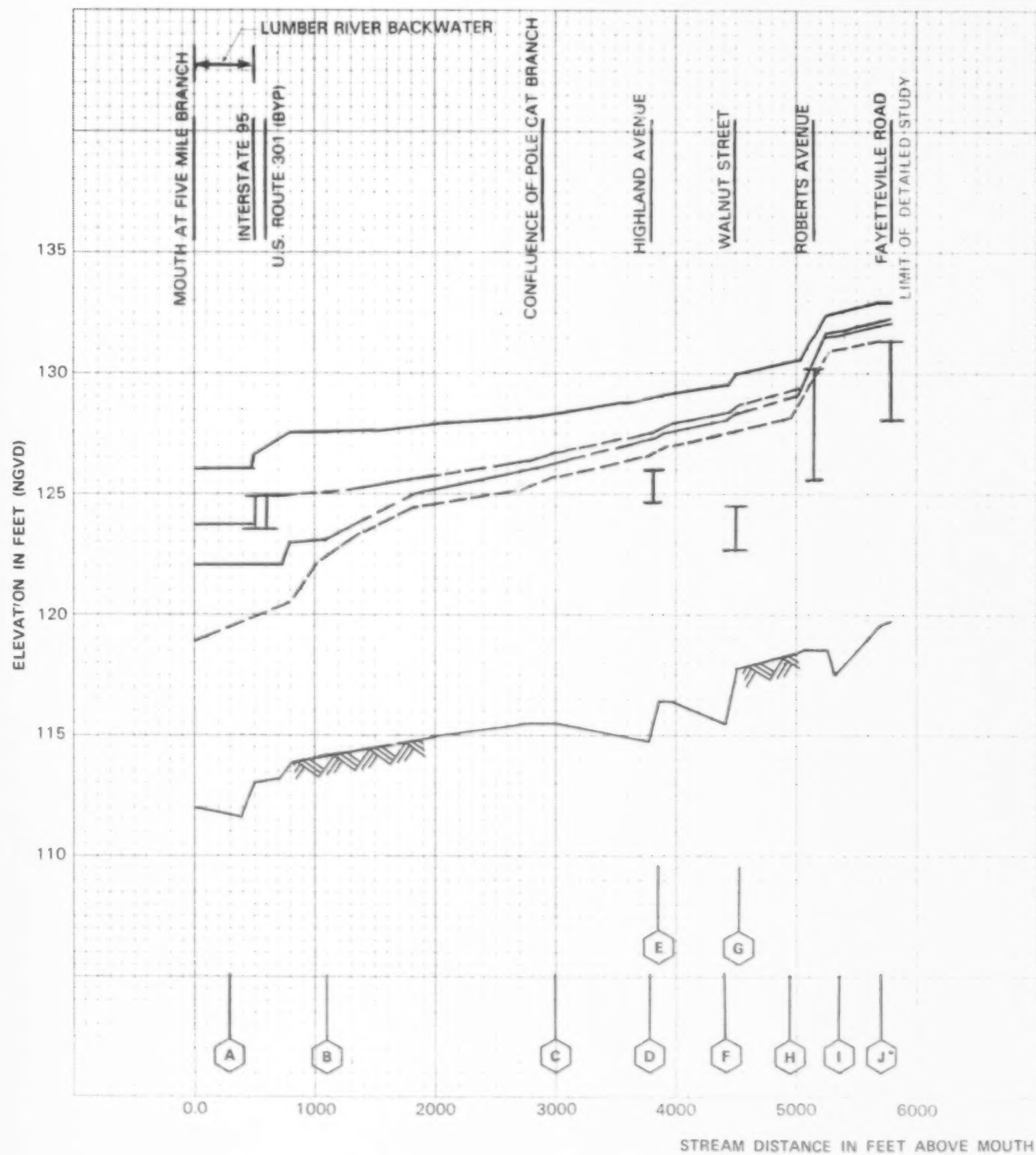


FLOOD PROFILES

LUMBER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS



FLOOD PROFILES

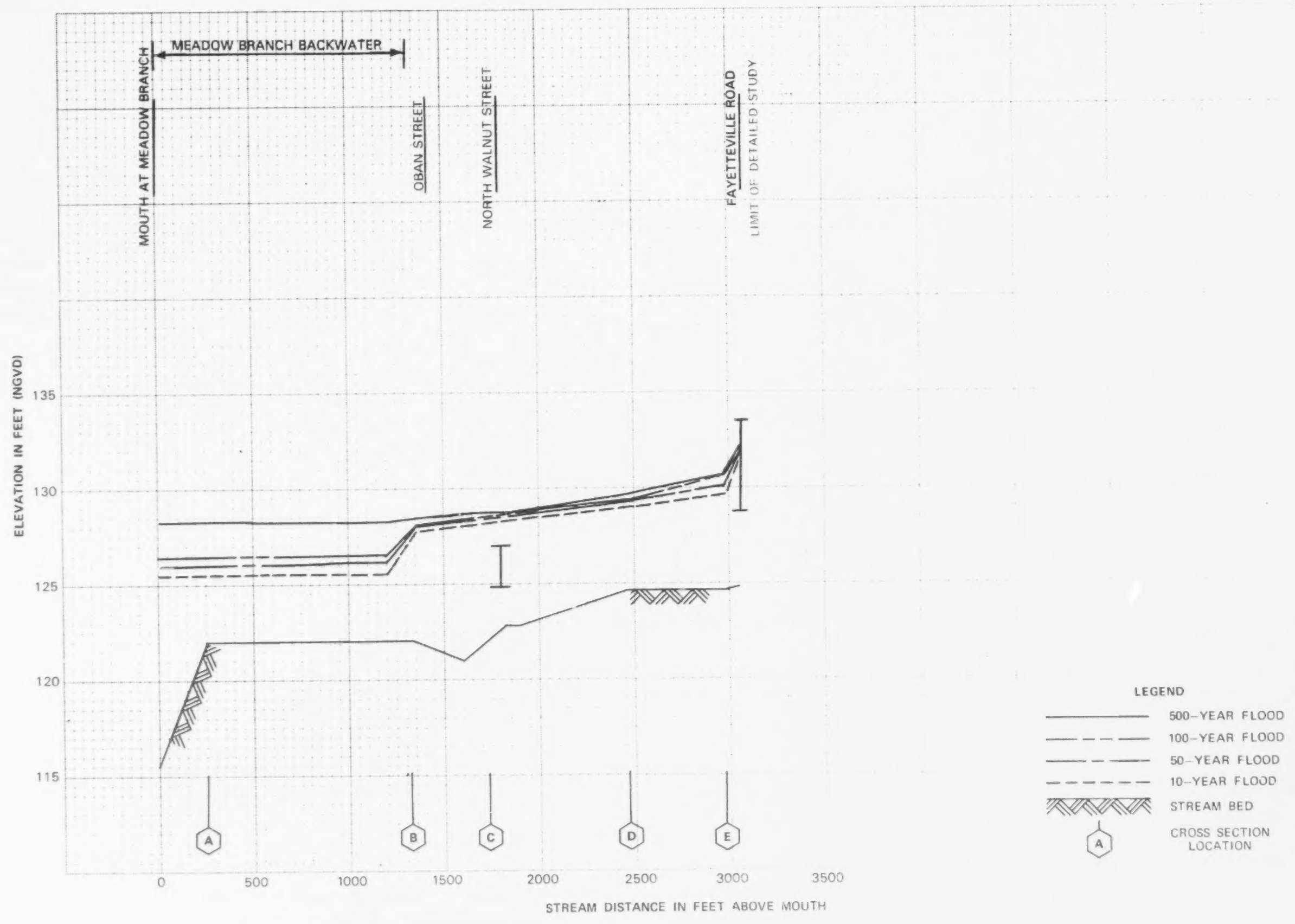
MEADOW BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY
 ROBESON COUNTY, NC
 AND INCORPORATED AREAS

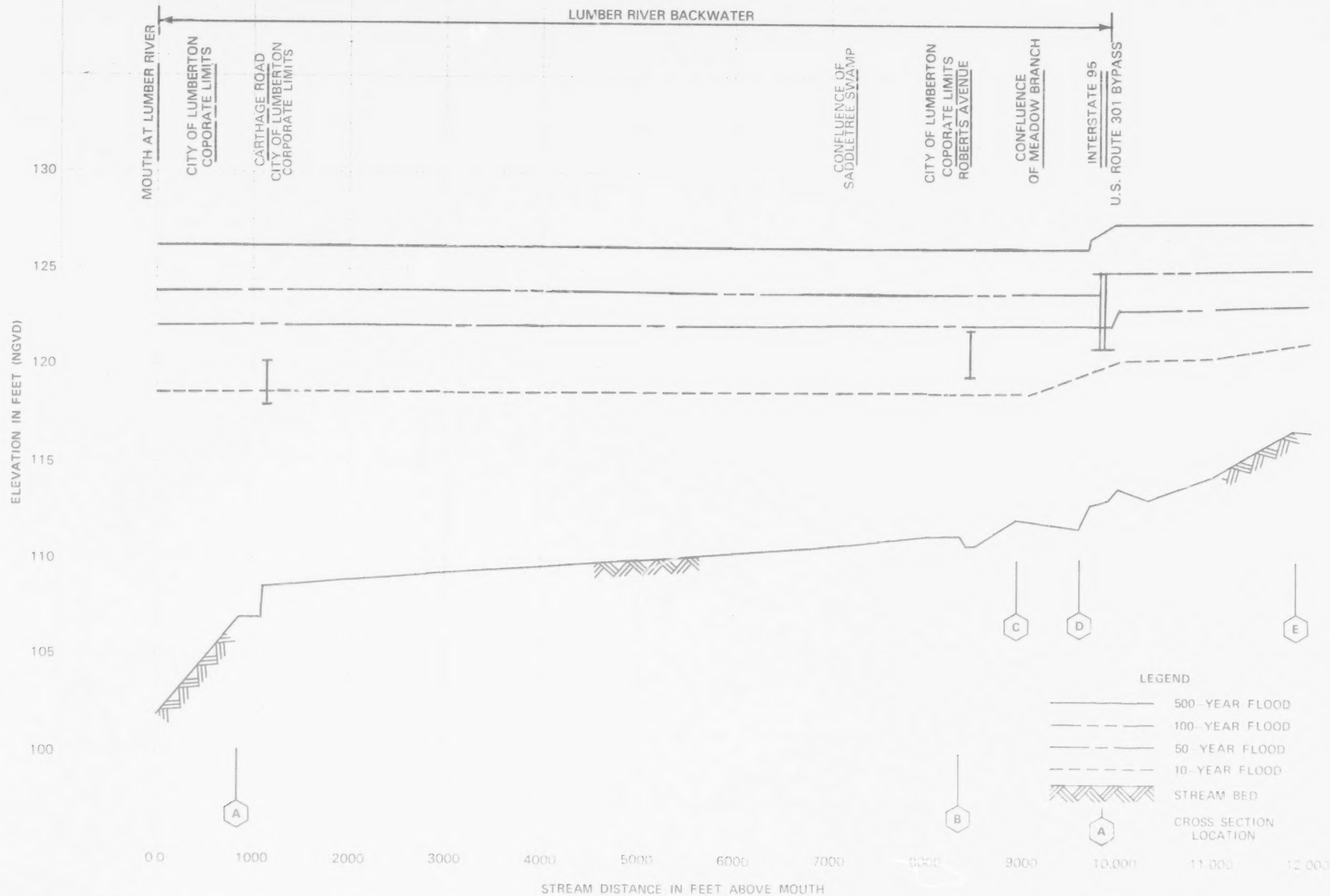
FLOOD PROFILES

POLE CAT BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY
 ROBESON COUNTY, NC
 AND INCORPORATED AREAS



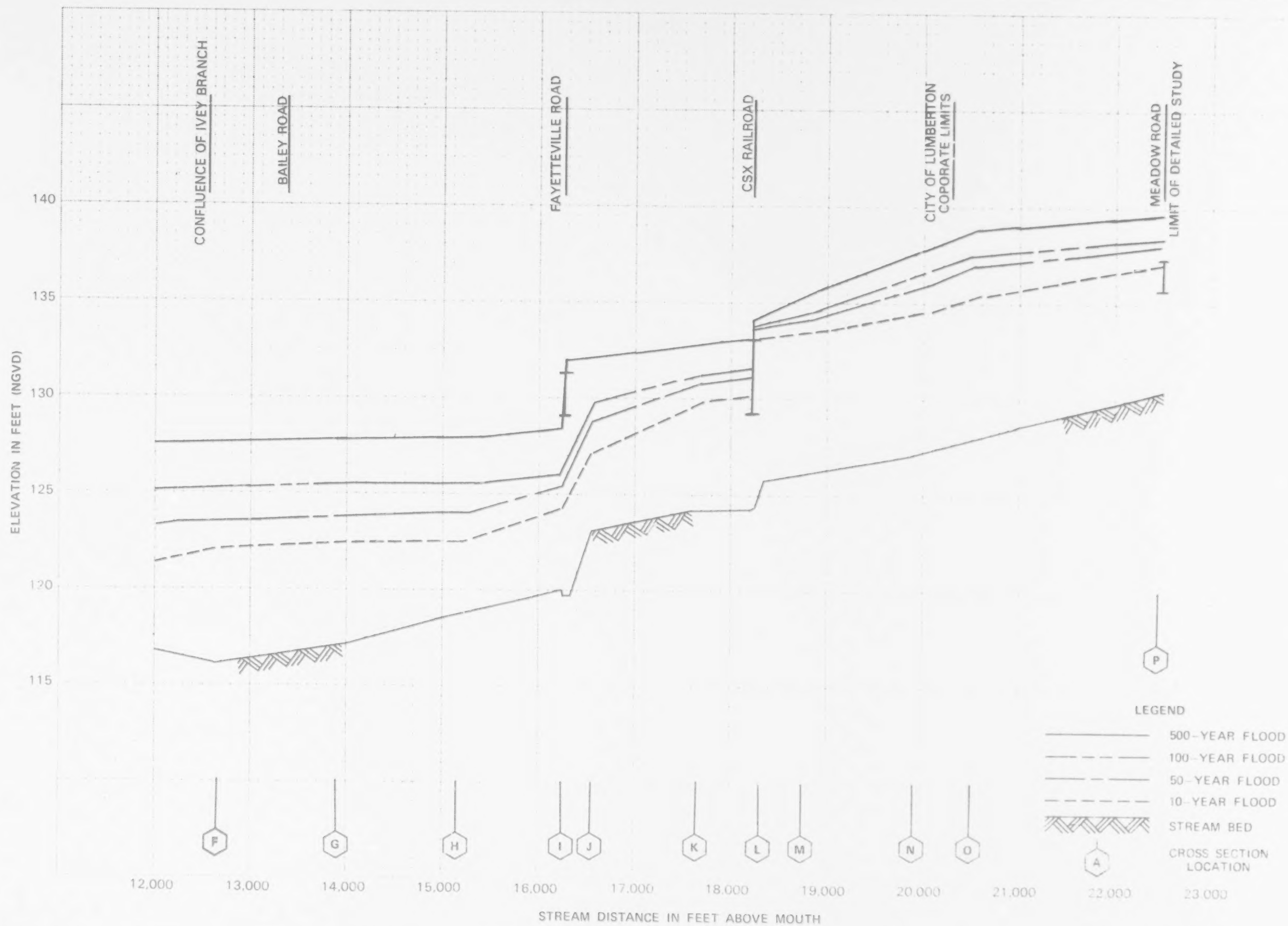
41



FLOOD PROFILES

FIVE MILE BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY
ROBESON COUNTY, NC
AND INCORPORATED AREAS



FLOOD PROFILES

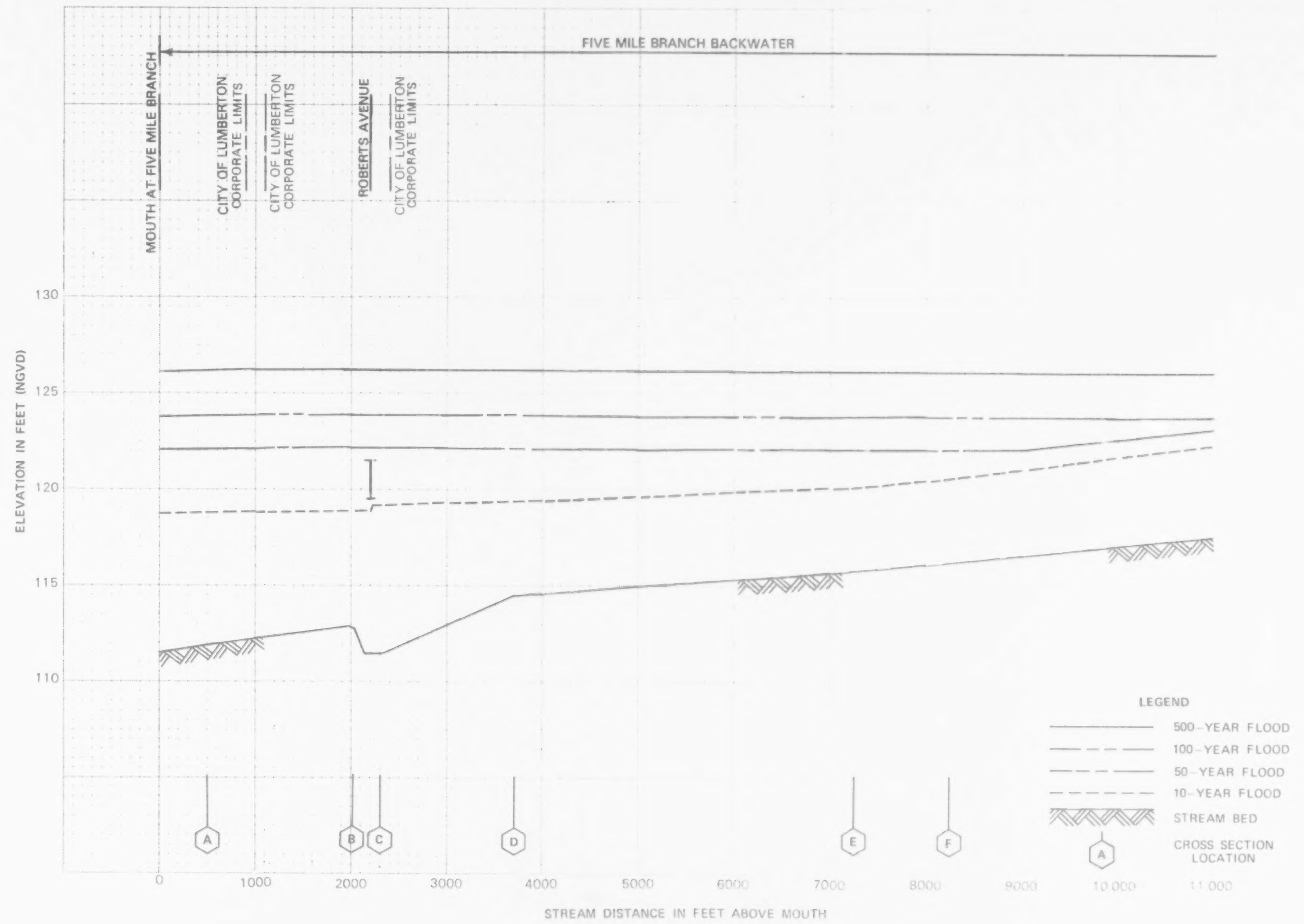
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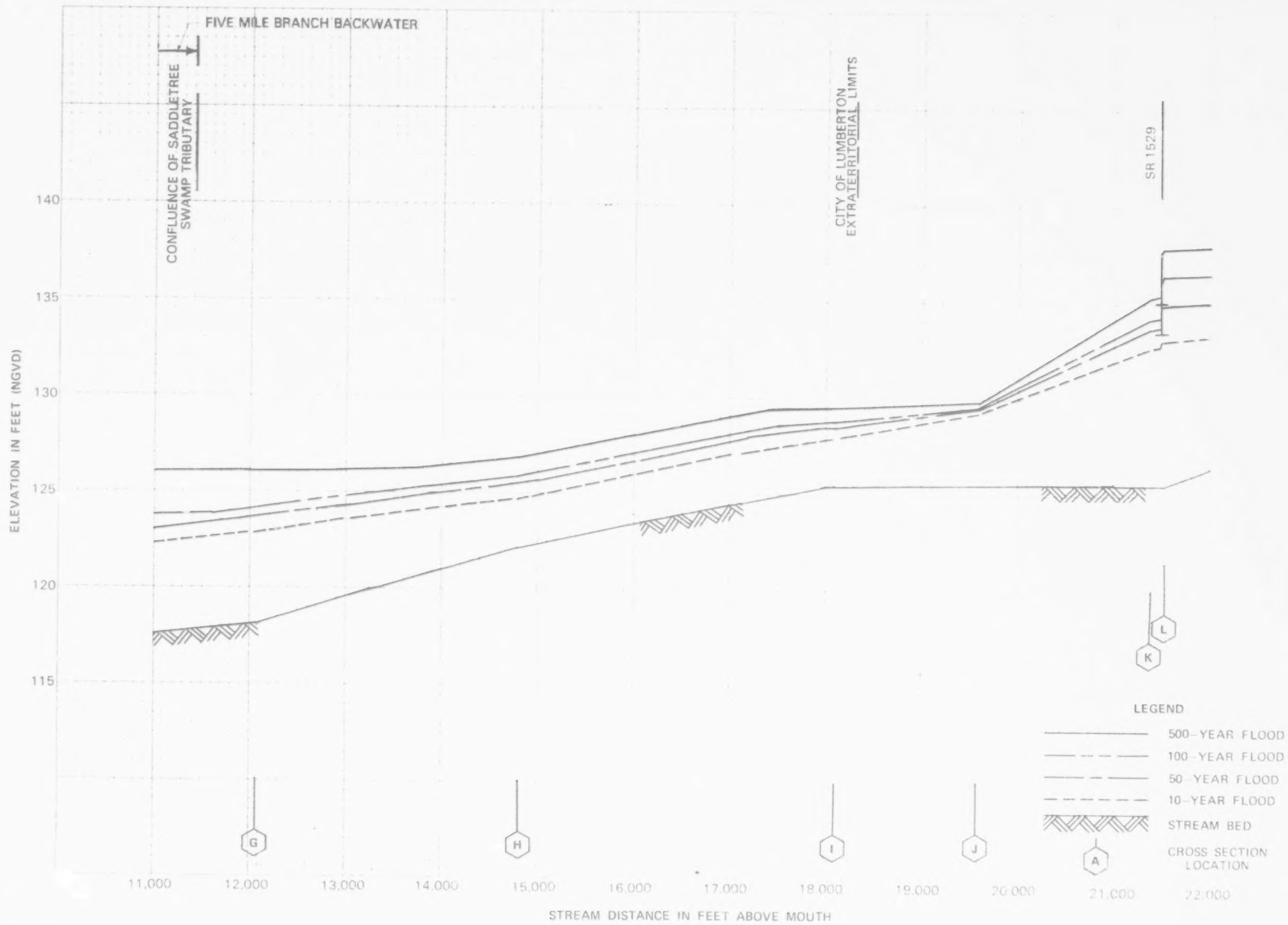
ROBESON COUNTY, NC
AND INCORPORATED AREAS

FLOOD PROFILES
SADDLETREE SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY
ROBESON COUNTY, NC
AND INCORPORATED AREAS



45



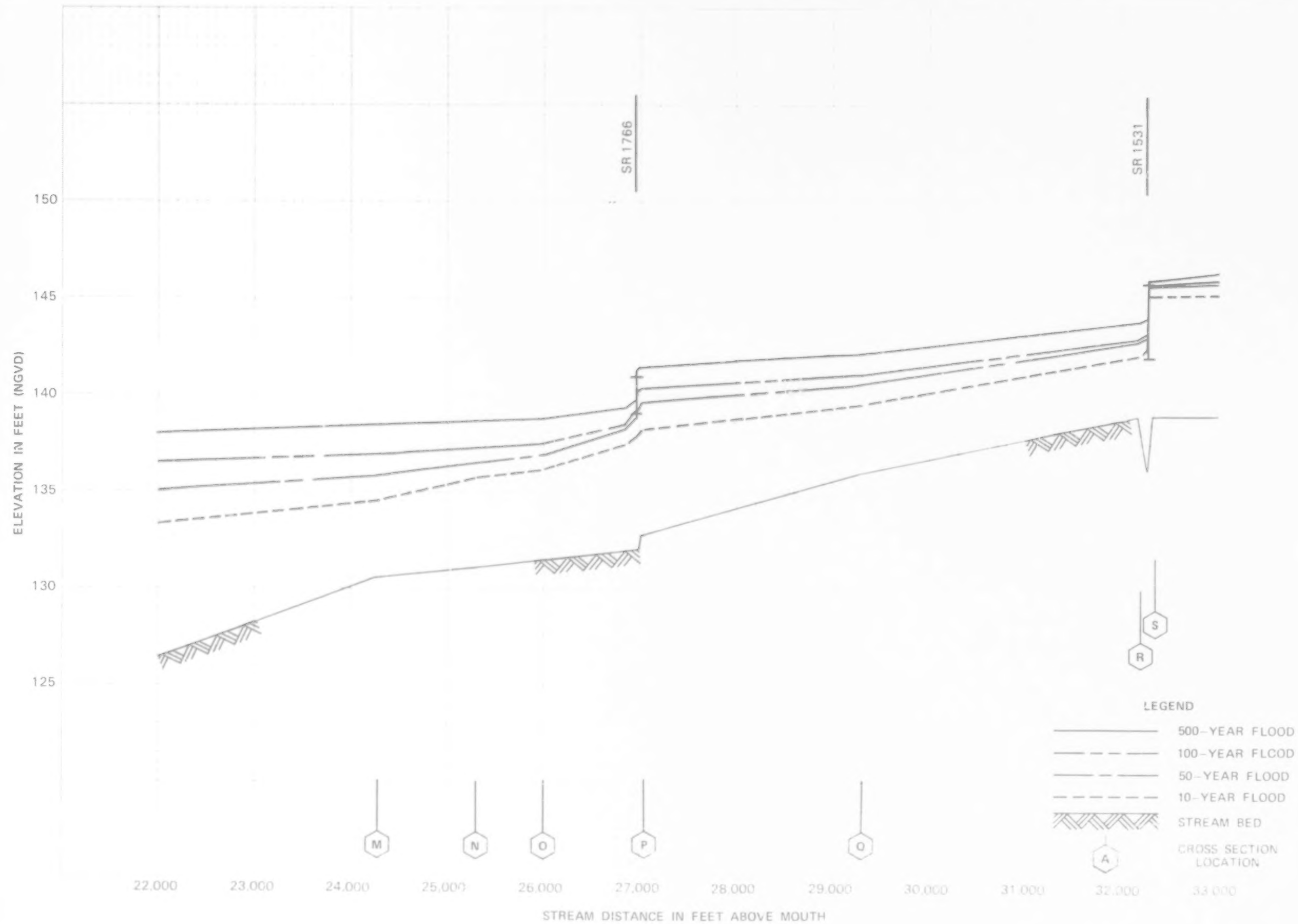
FLOOD PROFILES

SADDLETREE SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC

AND INCORPORATED AREAS



FLOOD PROFILES

SADDLETREE SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

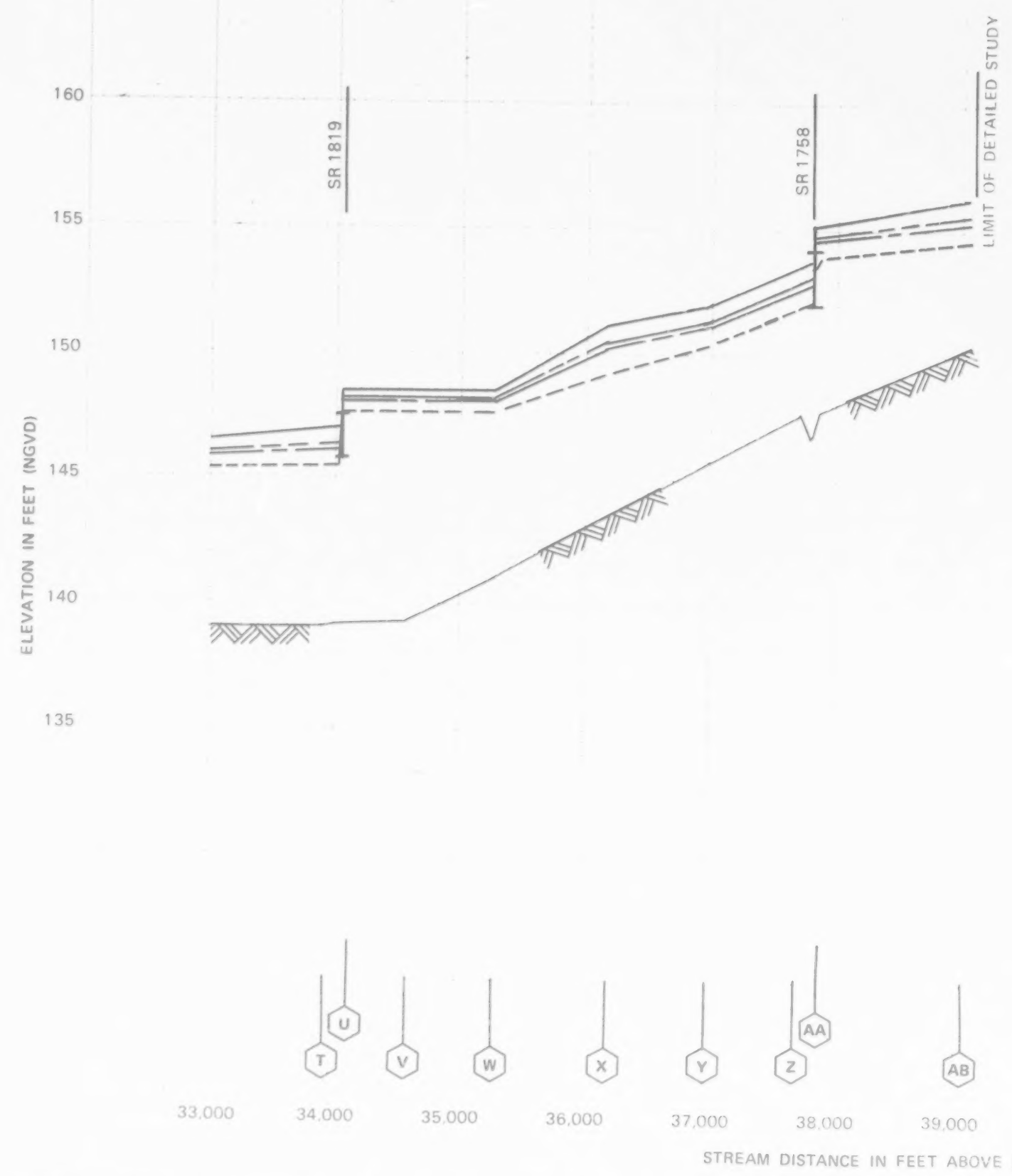
ROBESON COUNTY, NC
AND INCORPORATED AREAS

18P

47

FLOOD PROFILES
SADDLETREE SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY
ROBESON COUNTY, NC
AND INCORPORATED AREAS



- LEGEND**
- 500-YEAR FLOOD
 - 100-YEAR FLOOD
 - - - - 50-YEAR FLOOD
 - . - . 10-YEAR FLOOD
 - ||||| STREAM BED
 - ⬢ A CROSS SECTION LOCATION

48

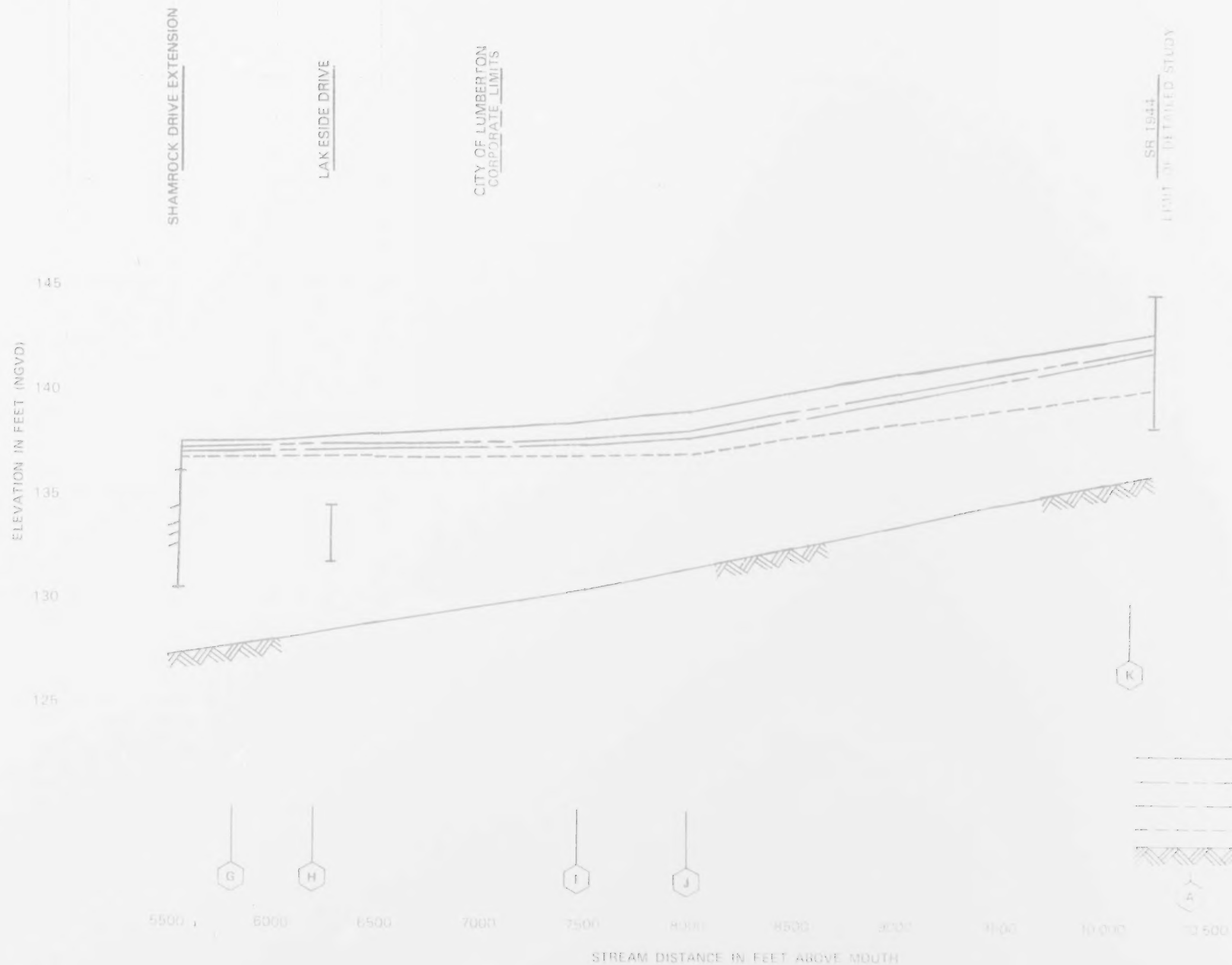


FLOOD PROFILES

SADDLE TREE SWAMP TRIBUTARY

ROBESON COUNTY, NC

AND INCORPORATED AREAS



FLOOD PROFILES

SADDLETREE SWAMP TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS



FLOOD PROFILES

BACK SWAMP

UTTERAL EMERGENCY MANAGEMENT AGENCY

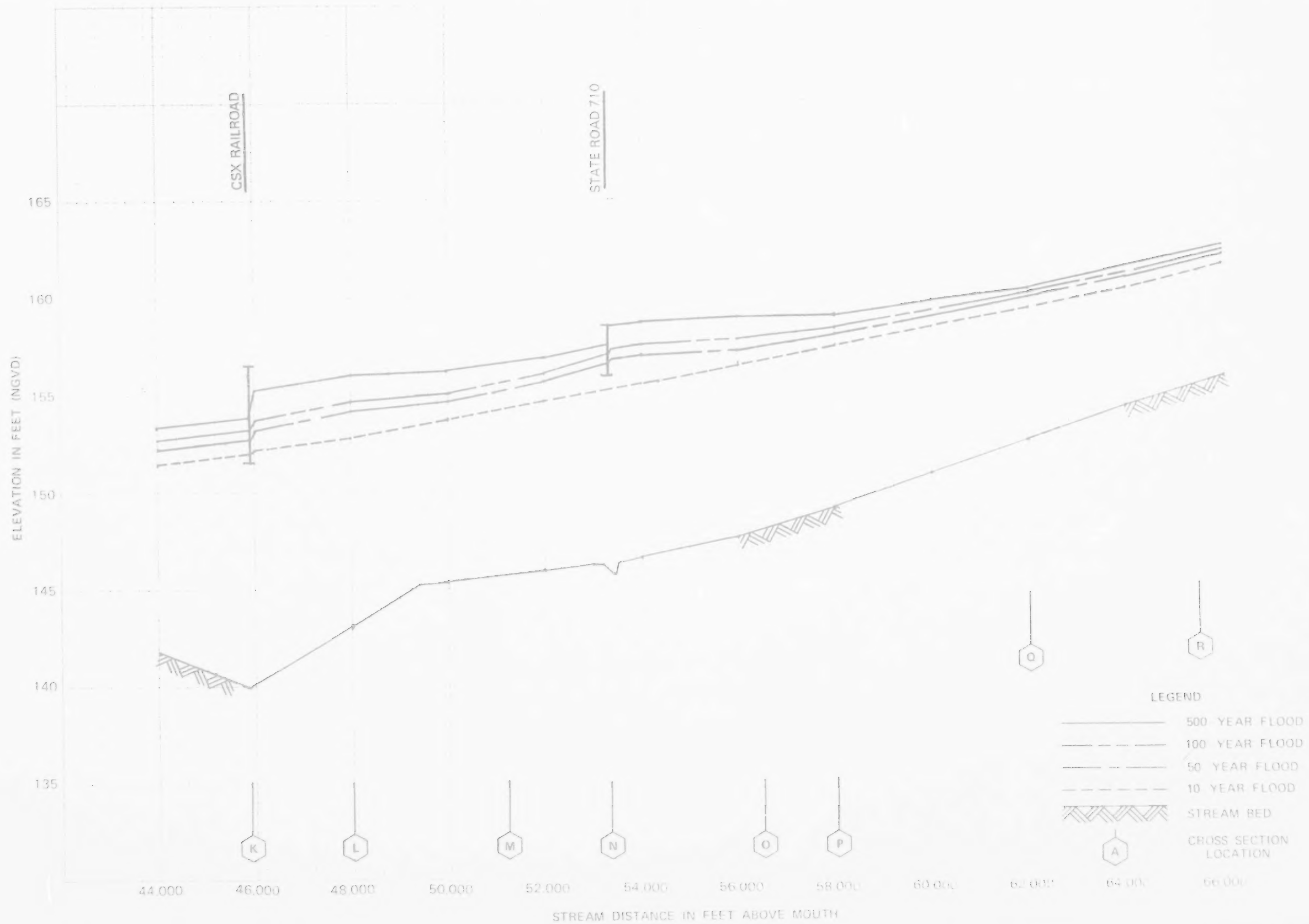
ROBESON COUNTY, NC
AND INCORPORATED AREAS



FLOOD PROFILES

BACK SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY
ROBESON COUNTY, NC
AND INCORPORATED AREAS



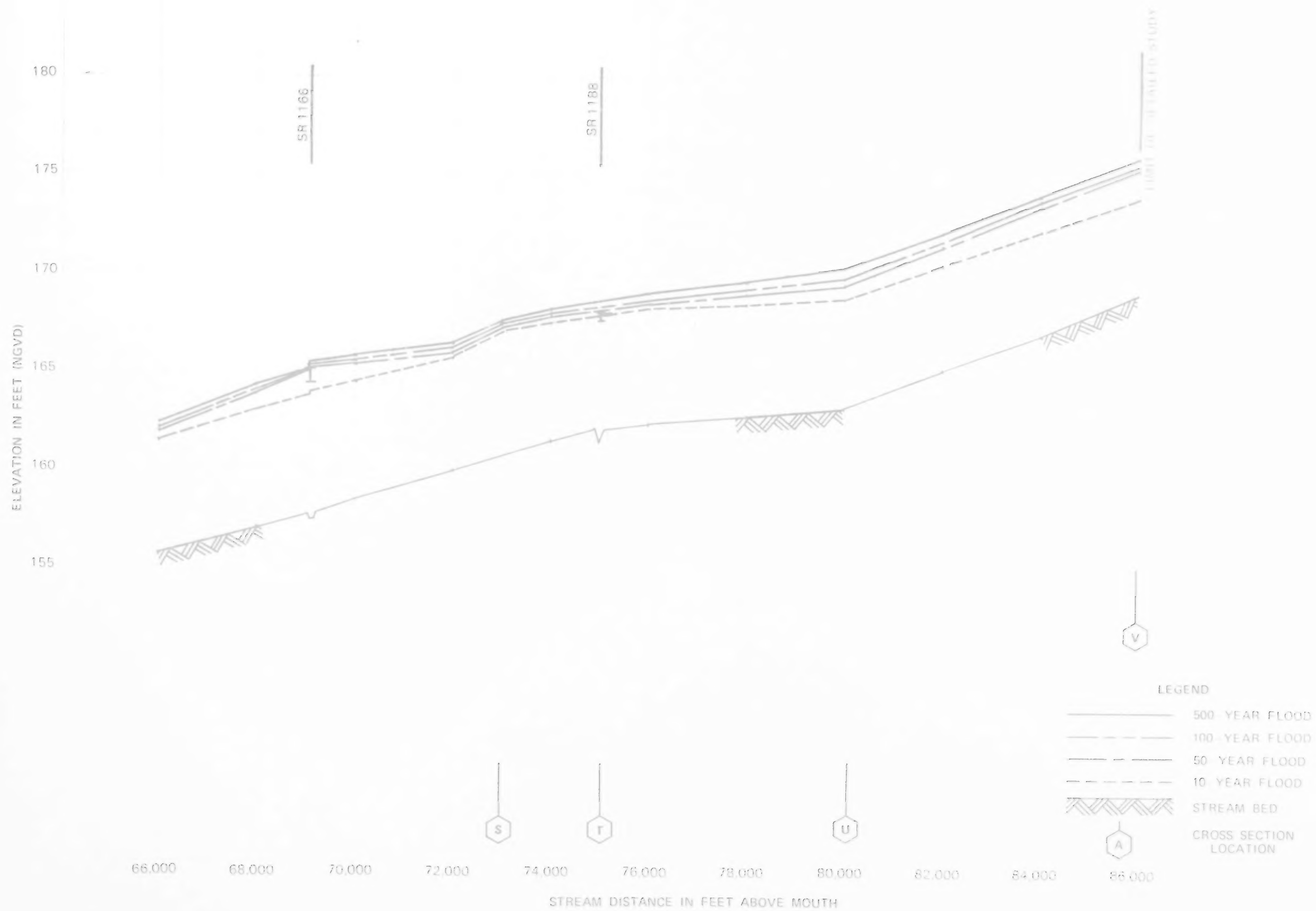
FLOOD PROFILES

BACK SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS

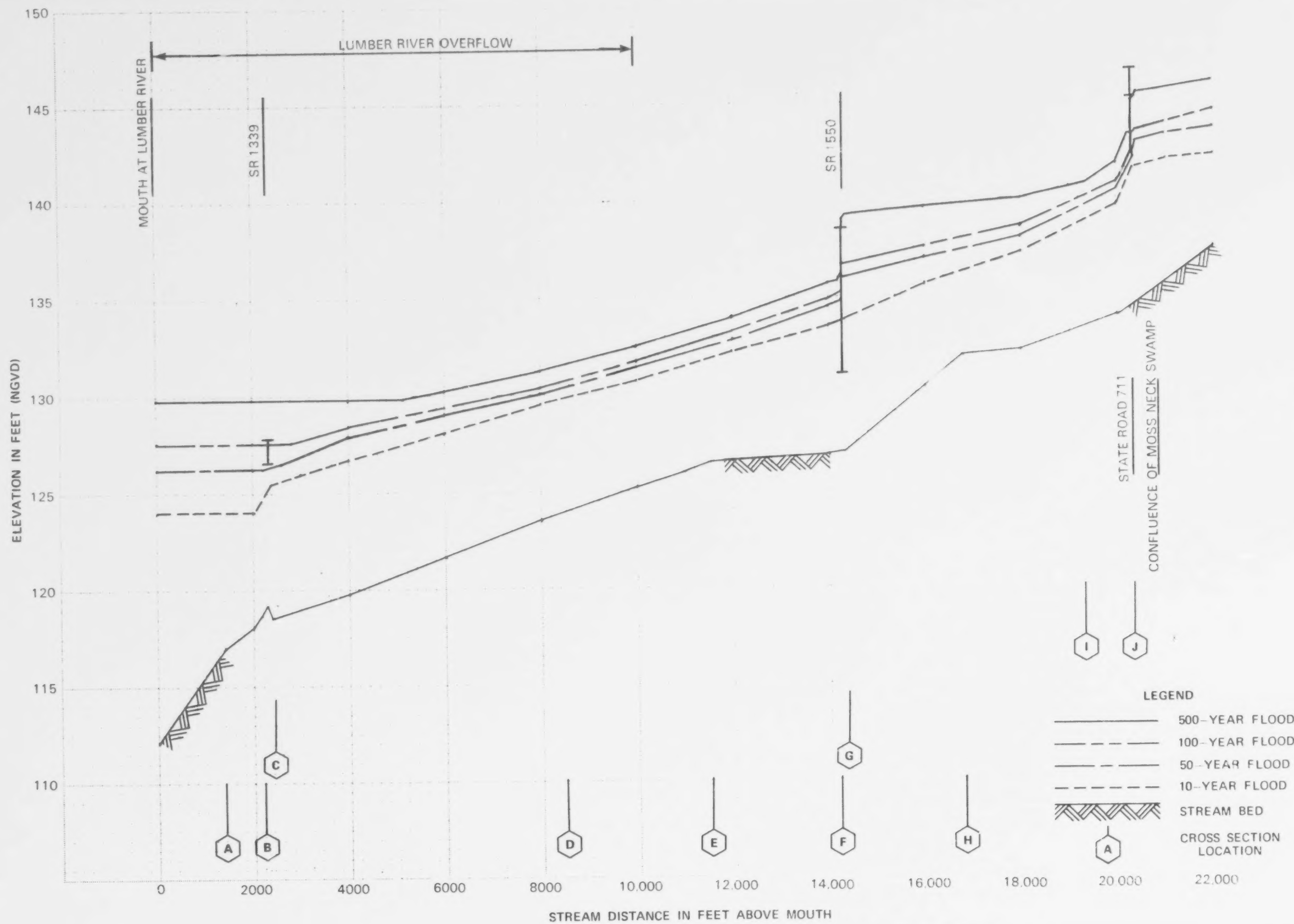
24P



FLOOD PROFILES

BACK SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY
 ROBESON COUNTY, NC
 AND INCORPORATED AREAS

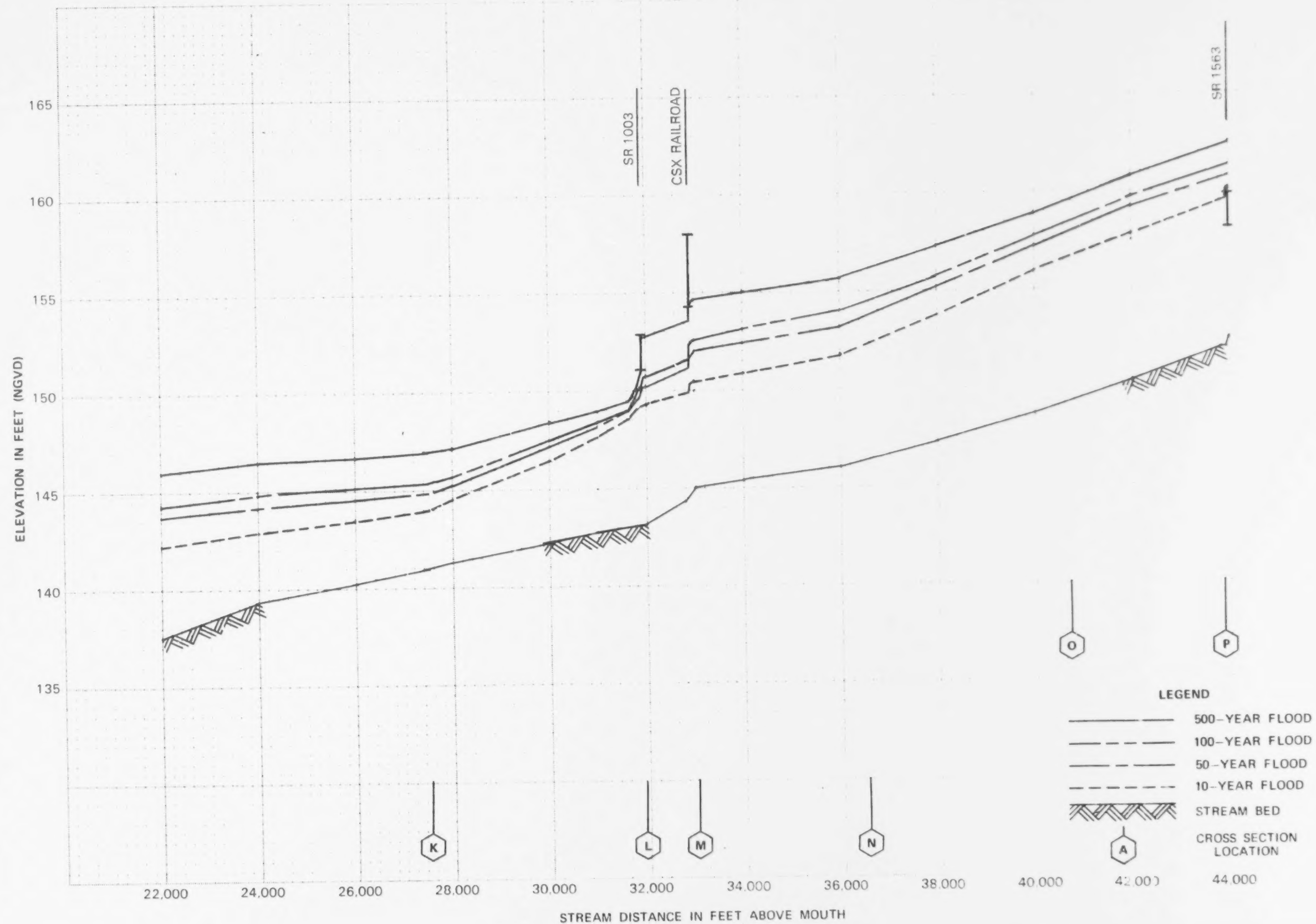


FLOOD PROFILES

BEAR SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS



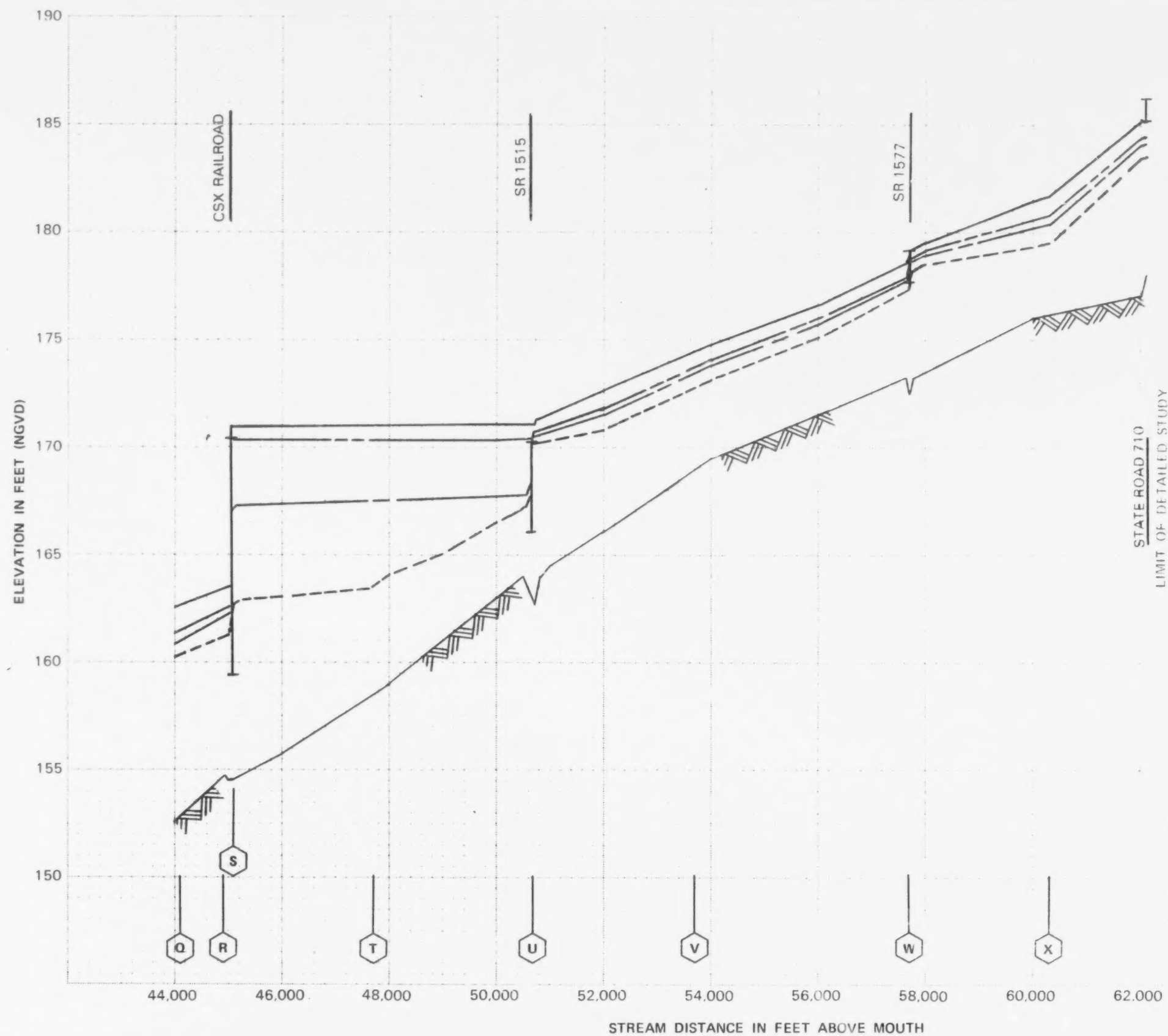
FLOOD PROFILES

BEAR SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS

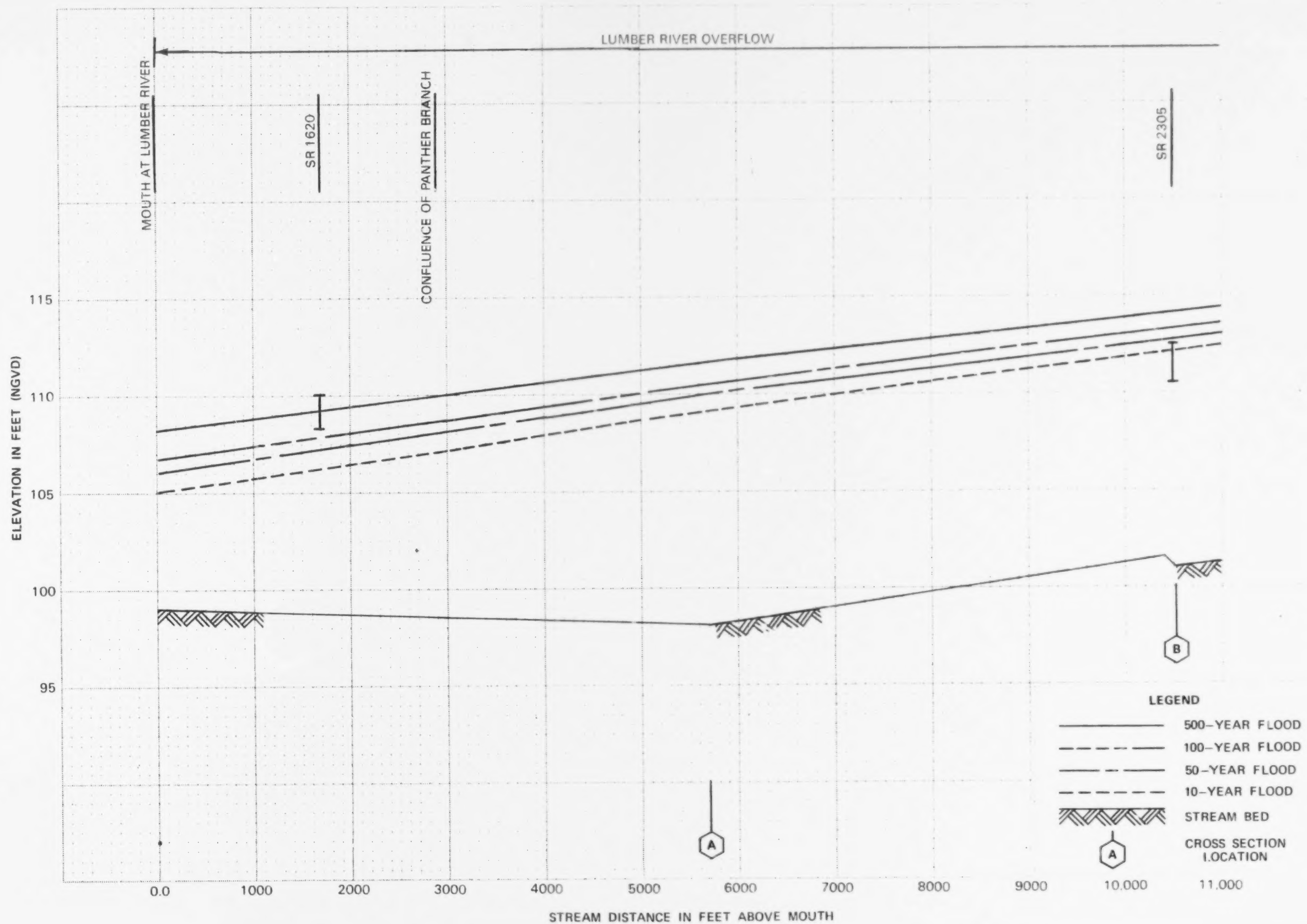
27P



LEGEND

- 500-YEAR FLOOD
- 100-YEAR FLOOD
- 50-YEAR FLOOD
- 10-YEAR FLOOD
- STREAM BED
- CROSS SECTION LOCATION

51



LEGEND

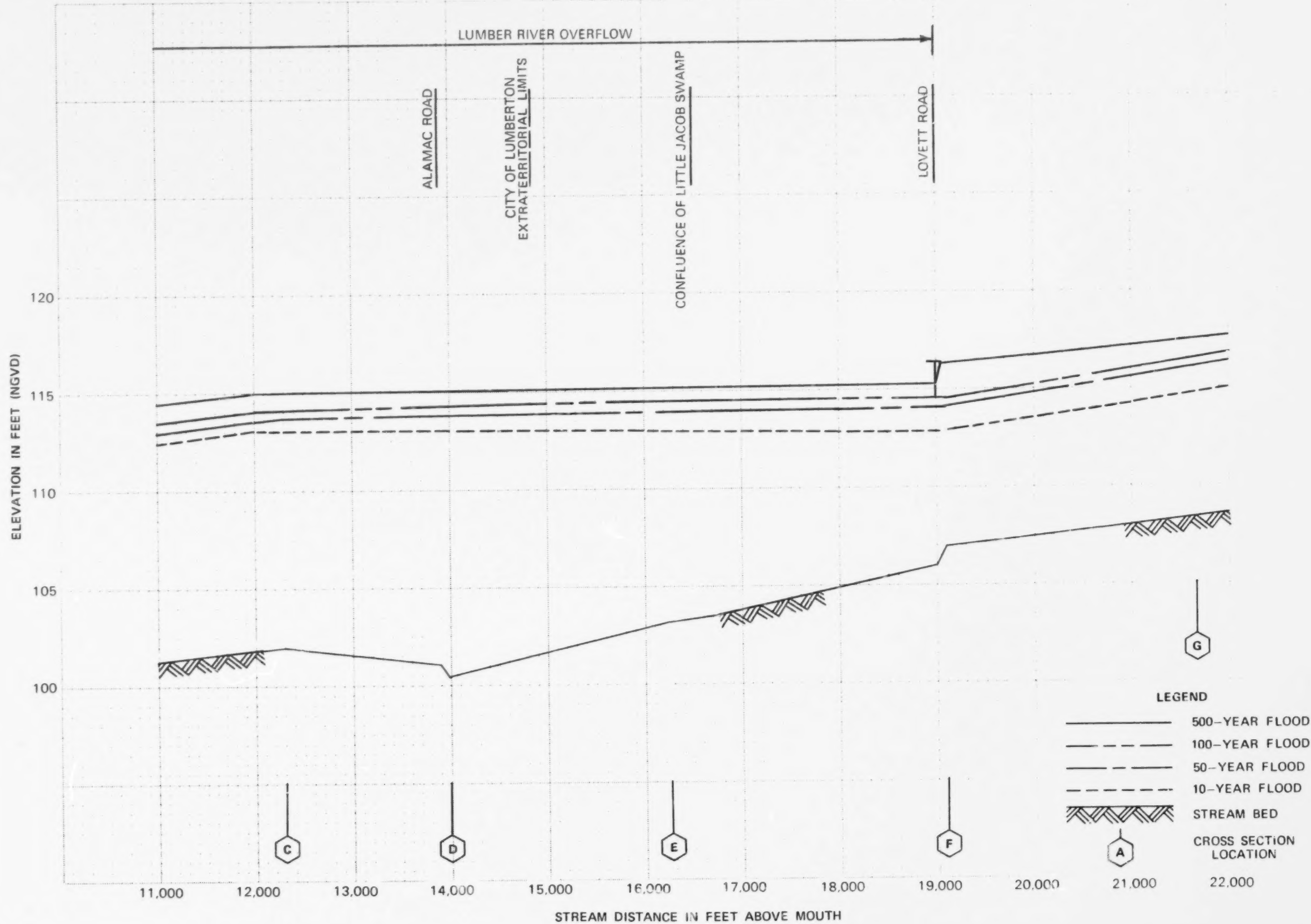
- 500-YEAR FLOOD
- 100-YEAR FLOOD
- - - - 50-YEAR FLOOD
- . - . 10-YEAR FLOOD
- ////// STREAM BED
- A CROSS SECTION LOCATION
- B CROSS SECTION LOCATION

FLOOD PROFILES

JACOB SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY
 ROBESON COUNTY, NC
 AND INCORPORATED AREAS

38



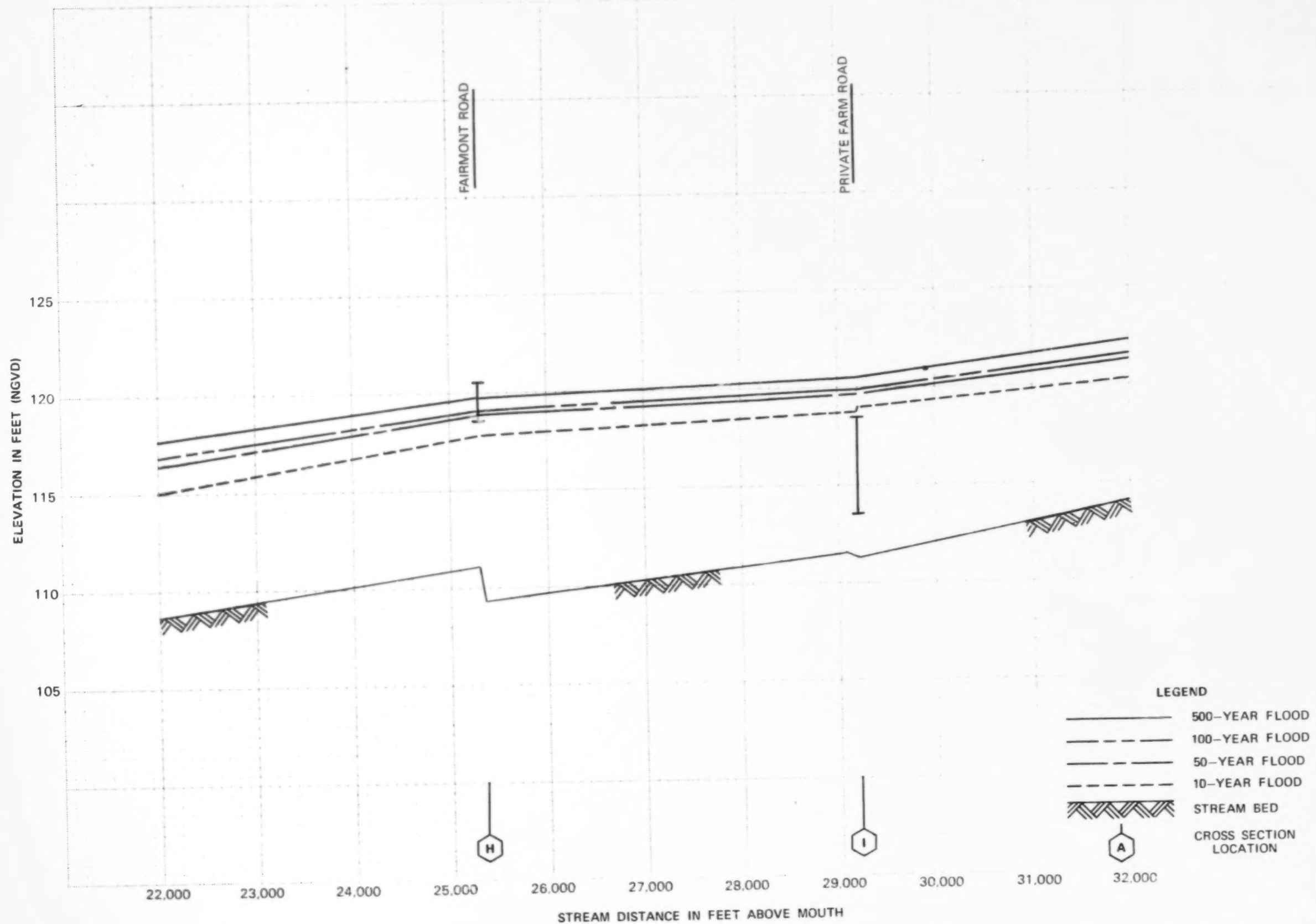
FLOOD PROFILES

JACOB SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS

30P



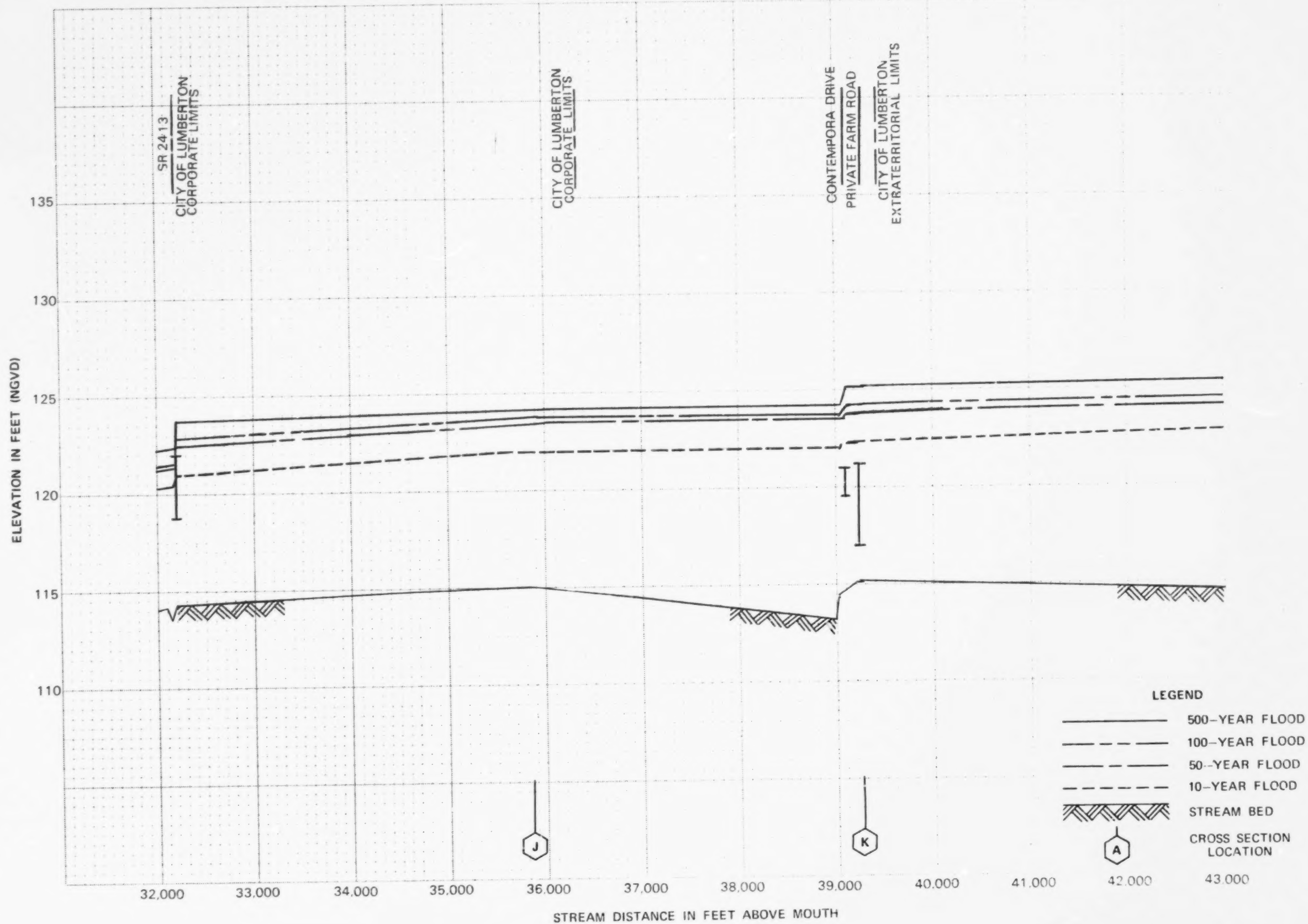
FLOOD PROFILES

JACOB SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS

31P



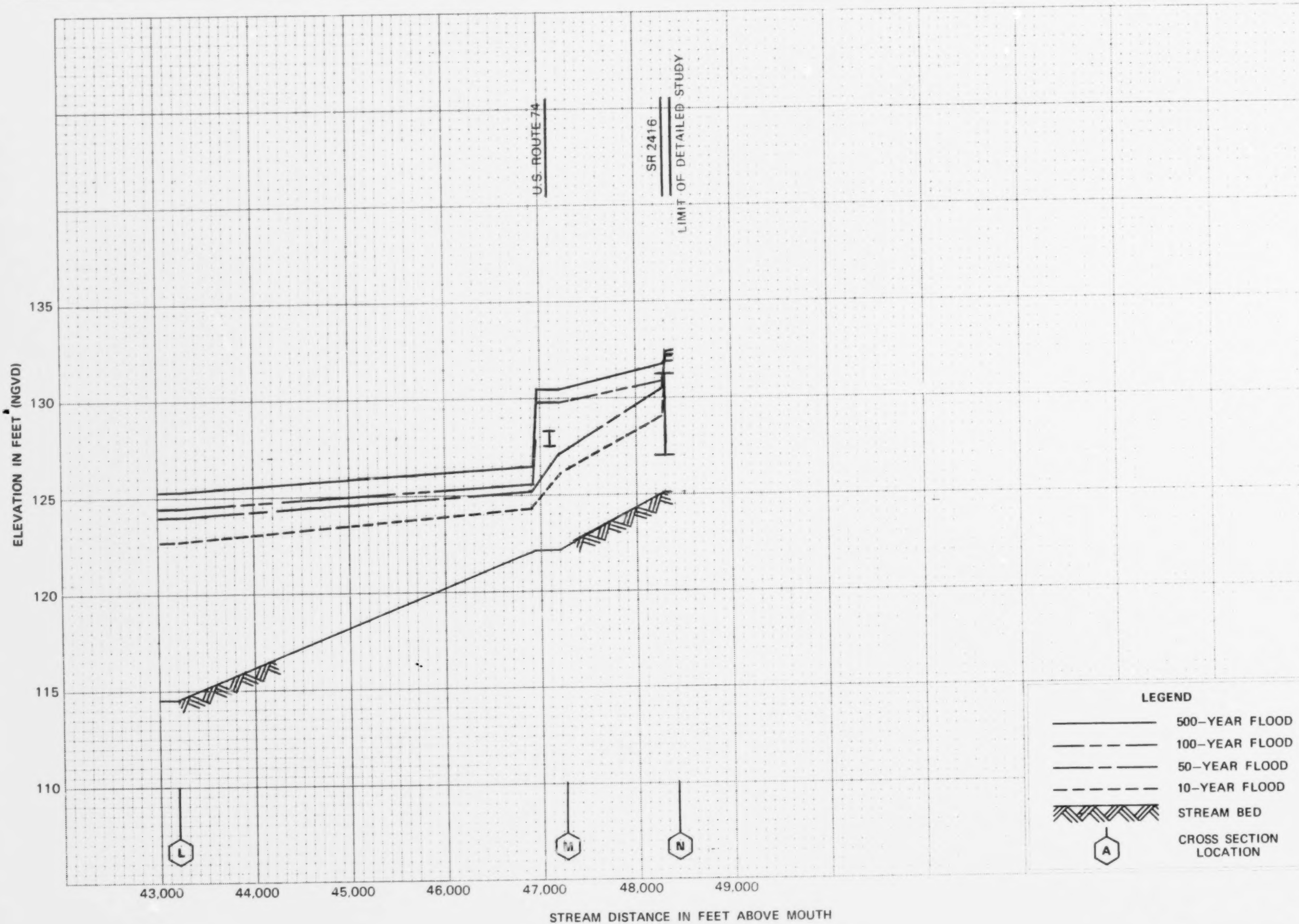
FLOOD PROFILES

JACOB SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS

32P



FLOOD PROFILES

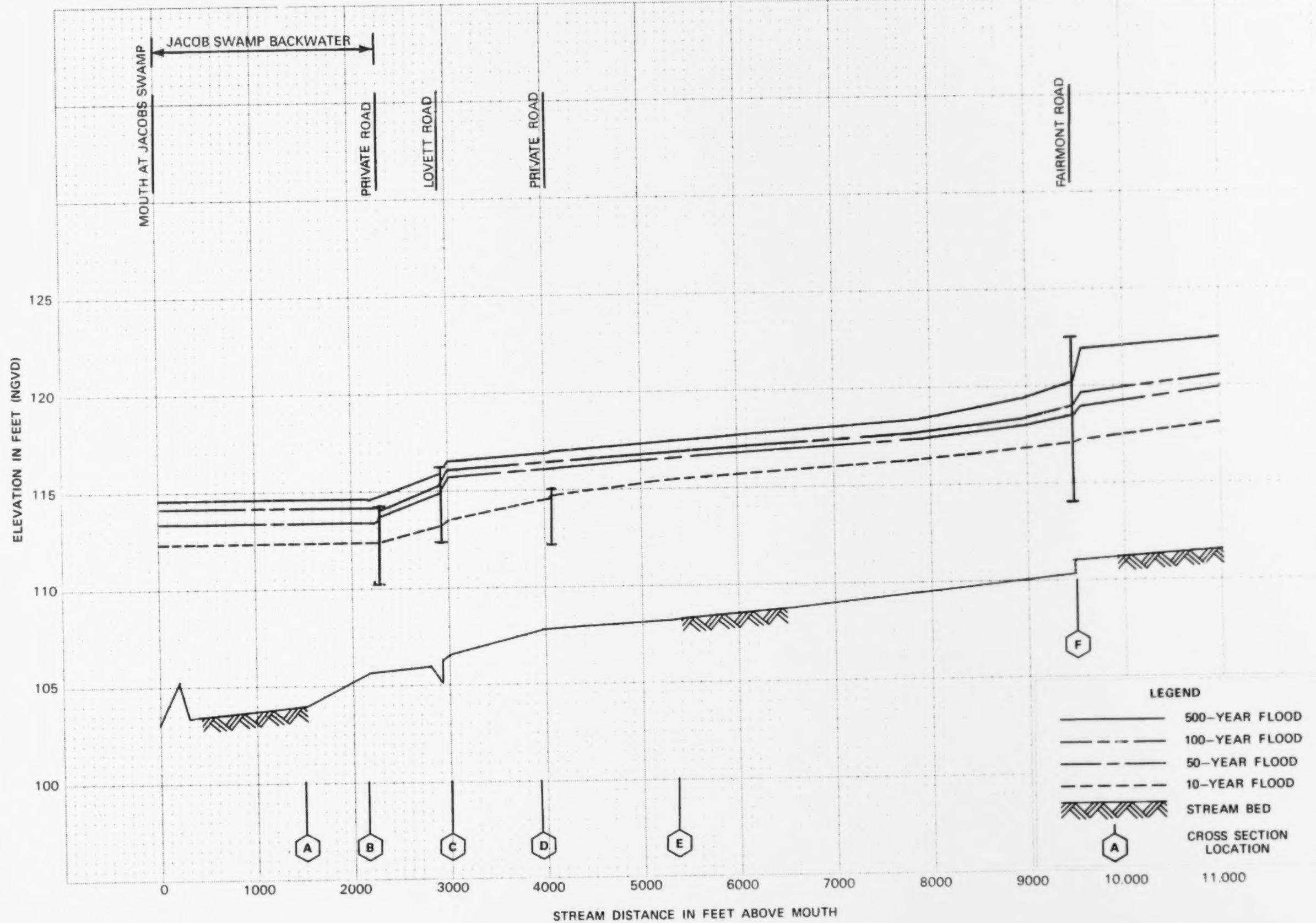
JACOB SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS

33P

62-



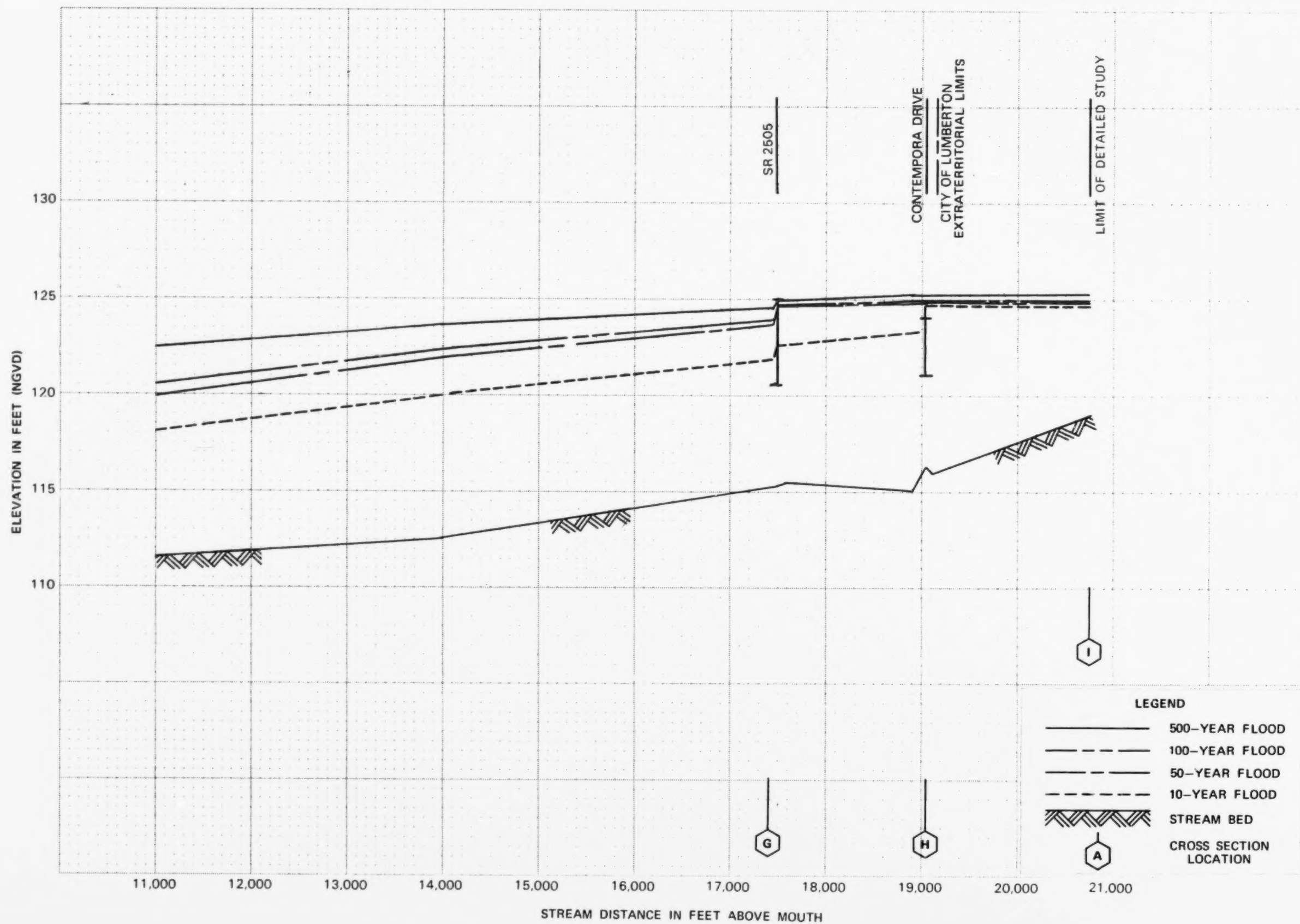
FLOOD PROFILES

LITTLE JACOB SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS

34P



FLOOD PROFILES

LITTLE JACOB SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROBESON COUNTY, NC
AND INCORPORATED AREAS

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